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The AERO MODELLER

INCORPORATING THE "MODEL AEROPLANE CONSTRUCTOR"

EDITORIAL

WITH this issue we commence our fifth year of publication. Following the usual practice in the publishing trade, we are "out" in the month previous, and so, with the temperature in the 55's, and the weather sunny and enjoyable, we wish all our readers a Happy Christmas!

(Our New Year wishes will follow in our next issue, and will be offered at a more appropriate time—perhaps accompanied by more appropriate weather!)

With yet another month gone by and peace (relatively speaking) still with us, we find aero-modelling even more back to its natural conditions; and a number of clubs that had "closed down" finding that they have *not* done so after all!

In fact, in a number of cases, we hear of increased activities, both by individual aero-modellers and certain clubs; and a greatly increased interest in solid and flying scale models of modern fighter and bomber aircraft.

To cater for this increased interest, we are pleased to announce that the attentions of Mr. C. A. H. Pollitt, our staff draughtsman, and our contributor, Mr. Peter Garrod Chinn, will, in the main, be devoted to models of this type. There is a fine article on fighters and bombers in this issue, and in our next, Mr. Chinn will deal with French fighter aircraft. Mr. Pollitt is busily engaged on designing flying scale models of some of the latest German aircraft, and in following issues we shall publish plans for "solid" modellers, and issue free insert plans for flying scale models of these machines.

* * * * * *

"Can you advise me of a book on model aircraft that deals with everything in a simple and elementary way — a book suitable for a beginner!" This is a question that we have been asked with increasing frequency during the past year or so, and to which we have had but a somewhat limited answer to offer. Then we have had enquiries for books on "Flying Scale Models," or perhaps on "Solids," or the running of petrol engines. And invariably we have had difficulty in making suitable recommendations, usually because there was not a book of the type available. Now all this is to be altered by a series of books to be published by the Harborough Publishing Co. Ltd., which is already known to our readers as the publishers of Mr. D. A. Russell's well-known book, "The Design and Construction of Flying Model Aircraft."

The first two books in this series are now available, and particulars are given in advertisements in this issue. "An A.B.C. of Model Aircraft Construction," by Mr. C. S. Rushbrooke, is the answer to the question given at the beginning of this paragraph. The second book, "Design of Wakefield Models," by Mr. S. B. Stubbs, will recall our competition last year for a Wakefield design, which he won.

The third book—which will be published early in December—has been written by Messrs. J. H. Towner and Howard Boys, and is entitled, "Scale Model Aircraft that Fly." Readers will know all these authors as contributors to THE AERO-MODELLER and as experts in the phase of model aeronautics on which they write.

All the books are fully illustrated, and right up to date. We have read them through, and can thoroughly recommend them in every way. We understand that further books will be published in the New Year, so that eventually there will be a complete range, dealing with each phase of model aircraft building, all published at popular prices within the 1/8 to 8/- range.

* * * * * *

We understand that a meeting of the Council of the S.M.A.E. was to be held on Sunday, November 12th. So we hope in our next issue to include a report from the Society stating its "war-time" policy; meanwhile, we are pleased to publish overleaf a message from Mrs. Thurston, wife of the President, which we heartily endorse.

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With the transfer of large proportions of the younger members of the population from our cities, it was inevitable that we should require to arrange a redistribution of our deliveries of copies of THE AERO-MODELLER. In addition, a number of toy shops have closed down, and copies are thus no longer available from these sources. We, therefore, want to emphasise that there is no shortage of supplies of THE AERO-MODELLER, and that no reader, no matter where he is now living, need have the slightest difficulty in obtaining his copy, *provided* he places an order for regular delivery with a newsagent.

We have printed an order form on the back inside cover

page of this issue, which should be used immediately.

Copies of THE AERO-MODELLER can be obtained from any newsagent or bookseller, or from any of the bookstalls of Messrs. W. H. Smith and Son, provided this form is used.

If any readers have had difficulty in obtaining copies of the October or November issues, will they please let us know. If they could not obtain copies we can supply from a small stock at our Leicester offices, at the usual price of 6d. per copy, but delivered post free.

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Owing to postal delays, it was not possible to complete the judging of the photos in our photographic competition in time to publish the results in this issue.

By the time these words are being read all prizewinners will have been notified and have received their prize money. Full results will be published in our next issue, advance particulars of which are given below.

Once again, to all our readers we extend our sincere good wishes, with the hope that they will enjoy this issue and find the Buyers' Guide of assistance. We invite photos of models of the "Spitfire," built from Mr. Pollitt's plan. 10/6 will be paid for what, in our opinion, is the best finished model, as shown by the photographs. All entries to be received by January 31st, 1940.

THE EDITOR.

A MESSAGE FROM MRS. THURSTON

WIFE OF DR. THURSTON, F.R.Ae.S., M.I.M.E., M.I.A.E., etc., President of S.M.A.E.

THE aero-modelling family is now embroiled in that relic of barbarism, which is war.

There is not the least doubt that aero-modellers will enrich any service that may fall to their lot with the high spirit of sportsmanship which has permeated their craft-hobby.

At the risk of seeming too previous, is it possible to suggest that *now* is the time to prepare for that constructive development which will take place as soon as peace returns to us?

Modern warfare leaves behind it many uncertainties and problems, and an exhaustion of body, mind and spirit which makes their solution difficult. It is helpful, then, if a course is planned before the full burden of conflict has to be shouldered. Moreover, warfare produces conditions under which it is difficult to restart former activities, and a thread of continuity, however tenuous it may be at times, is the best assurance of renewal.

To this end it would seem essential that clubs should "carry on" as well as may be. If executive and personnel become depleted, probably activities can be maintained by oldsters, youngsters, and women. If some clubs are threatened with extinction, perhaps more fortunate neighbouring clubs will be able to "take over for the duration," and hand back a nucleus at the termination of hostilities. In the case of clubs which are suffering heavily from evacuation activities, maybe their members will be able to form "clubs in exile," and thus introduce their infective enthusiasm into districts hitherto lacking the wealth of interest supplied by aero-model clubs.

If centralised events and "gatherings at Fairey's" have to be temporarily suspended, it does not imply that the governing body ceases to exist or to function, although in restricted manner. Neither does the fact that cups and trophies have to be deposited in safe places mean that winners of competitions are deprived of honour and glory.

Finally, it is not possible that international gatherings of aero-modellers have been barren of results, and if international friendships formed by aero-modellers seem to be suffering a set-back, this is only temporary. May the thought that they will be renewed, and extended without limit, be like a torch for aero-modellers to carry through the sombre days that are ahead of us all, for only by such means can the futile horrors of war be spared to future generations.

IN NEXT MONTH'S ISSUE

★ **Fighter Aircraft in the French Air Force** .. .. *By Peter Garrod Chinn*
★ **A Twin-Winder for Double-Skein Motors** .. .. *By H. E. White, B.Sc.*
★ **An 8 in. span 2½ minutes O.O.S. all Balsa Glider** .. .. *By T. R. Carroll*
★ **Recent Model Aircraft Developments in Italy** .. .. *By F. Piatelli*
★ **A Sideways Retracting Undercarriage for Solid Models** .. .. *By Tony Lake*
★ **Plotting Airfoil Sections** .. .. *By H. Martin*
★ **Constructional Notes** .. .. *By "Instructor"*
★ **Readers' Gadgets** .. .. *Described and Illustrated by C. A. H. Pollitt*
★ **Full-size Scale Plans for Building a Flying Scale Model of the Avro "Commodore"**

USE THE FORM ON THE BACK INSIDE COVER PAGE—AND MAKE SURE OF YOUR COPY

THE "GOOD OLD DAYS" By W. A. SMALLCOMBE, B.Sc.

This historic photograph was taken at Bristol in 1914. On the top row, seventh from the left, is Norman Edgar, and ninth is Tivy. On extreme left, in the bottom row, is Cross, of Bath, with next to him House, of Bristol. Fourth from the left is Will Clark, of Bristol, with next to him Wm. Smallcombe, author of this article, and next Harry Smallcombe, senior, now over 80 years old. On extreme right is Smith, of Bristol.

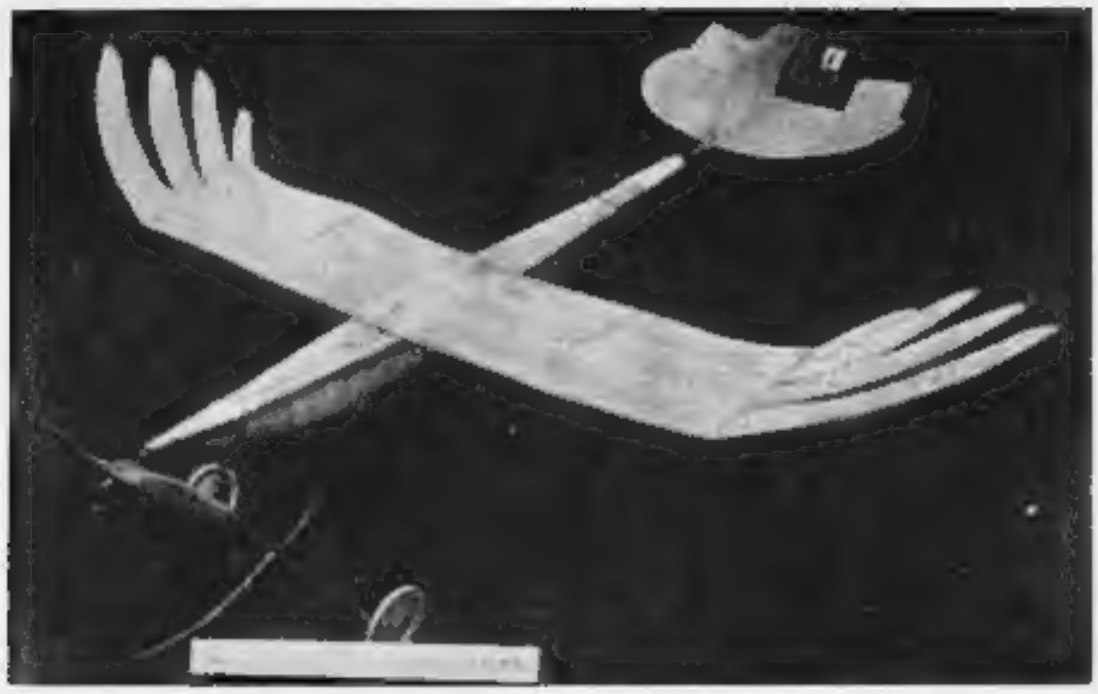
SOME time before 1914 I remember receiving a postcard from a pal saying that he supposed I was suffering from "Aeroplanitis." Here and now I confess that it has been a pleasant complaint for the last thirty years at least. It was the Wright brothers who stirred my imagination, for I recall how I was thrilled to ecstasy when I read of their exploits—but I, too, wanted to do things. One dark morning I remember cycling about eight miles from Bristol to see Cody hop from a field and disappear into the mist. That settled it for me.

With a few other Bristol enthusiasts I took part in testing a huge biplane glider at Bath. What a time we had! The seat was quite open, and it took minutes to climb between the wires into it. The wheel axles were lashed on by means of cycle tyres to enormous ash skids. My first glide was a poor affair and mostly bumps—but when I landed at the bottom of the slope I did hear a cheer from the hill—and needless to add, I was wearing my cap "front to back" in the approved style. The glider was really an enormous affair and of the 1-2-2 type. It took us about an hour to drag it to the top of the hill overlooking Bath. The sticky end it met was caused by a stall and sideslip, due, I believe, to one of our stunters putting on right rudder instead of left to keep her into the wind.

During the period 1911-1914 there was a strong band of enthusiasts at Bristol—the adults forming the Bristol and West of England Aero Club, and we younger ones (who did all the work and did not play whist!) formed the model section. Some of the names I can recall are Tivy (hon. secretary), Haines (hon. treasurer), House, Smith, Norman Edgar, Pearce, etc. There were many others whose faces and models I would recognise now, but I cannot recall their names.

Our indoor meetings were held at a large hotel in Clifton, and we had the use of the Aero Club library. Each Saturday afternoon we flew or tried our models on Durham Downs, near the Avon Gorge. There were invariably 12-20 members and as many machines. We used to travel on cycles or foot from many miles around, carrying the models in large triangular brown paper packages. Competitions were numerous, and we took part in point-to-point, distance, circuits, steering, etc. Our star member was, in my opinion, Mr. House. He is, I am delighted to know, still going strong. He made lovely models with fine finish—and he could always make 'em fly too. So much could not be said for all of us. Our good secretary was very advanced in his designs—but his buses would not just do their stuff in the air.

Of course, twin- and single-screw pushers were dominant, but we did try many shapes and devices. Most wings were made of steel wire and silk-covered, while fuselages were of the open type. Undercarriages—when present—were usually of an apologetic kind. Piano wire wings were very tough, but difficult to make. One day I picked up a Japanese sun blind made of split cane, and there were enough lengths to make up many wings—including some for friend House, who thereupon produced an excellent tractor with backswept and up-turned tips, which was a great advance in general design. Spruce was used for fuselages—balsa was, of course, not known. Some remarkable machines I remember were: "Vessey," with circular wings; a bi-cylindrical plane; Dunne monoplane; Pterydactyl; Bragg Smith; Pearce; Flemming Williams; Mann, etc. Screws were usually made of bent wood—birch or beech—with wide blades and heavy camber. We did have carved screws and some were laminated, but the bent wood props. seemed to win most of the competitions. Distances of 400-500 yards were quite frequent, and more attention was paid to distance than seconds' duration. Many propeller bearings were just L-shaped pieces of brass—old clocks were useful. One could not buy so much in those days, and we had to *make* our models. Umbrella ribs were frequently put to use, and there was always a demand for the discarded silk blouses of our lady relatives. Celluloid varnish was not used (or known), and we obtained the best finish on silk with copal varnish. Spirit varnish dried more quickly, but was brittle.



"PRE-WAR" 1914

On left is the author's prize-winner, the "Rook." Span was 3 ft. and length over tail also 3 ft. The fuselage was built of three longerons of spruce, with "steel wire" formers, and the wing was silk on a wire frame. Disc wheels with rubber tyres were carried on a piano wire undercarriage. The airscrew was of 11 in. diameter, carved from walnut, and mounted on a cycle-spoke shaft, complete with ball-bearing. Total weight was 8 oz., and power was obtained from eight strips ¼ in. flat strip. Below are two of the author's airscrews, and in centre, bentwood elevator, still in existence. We had them to photograph to illustrate this article.

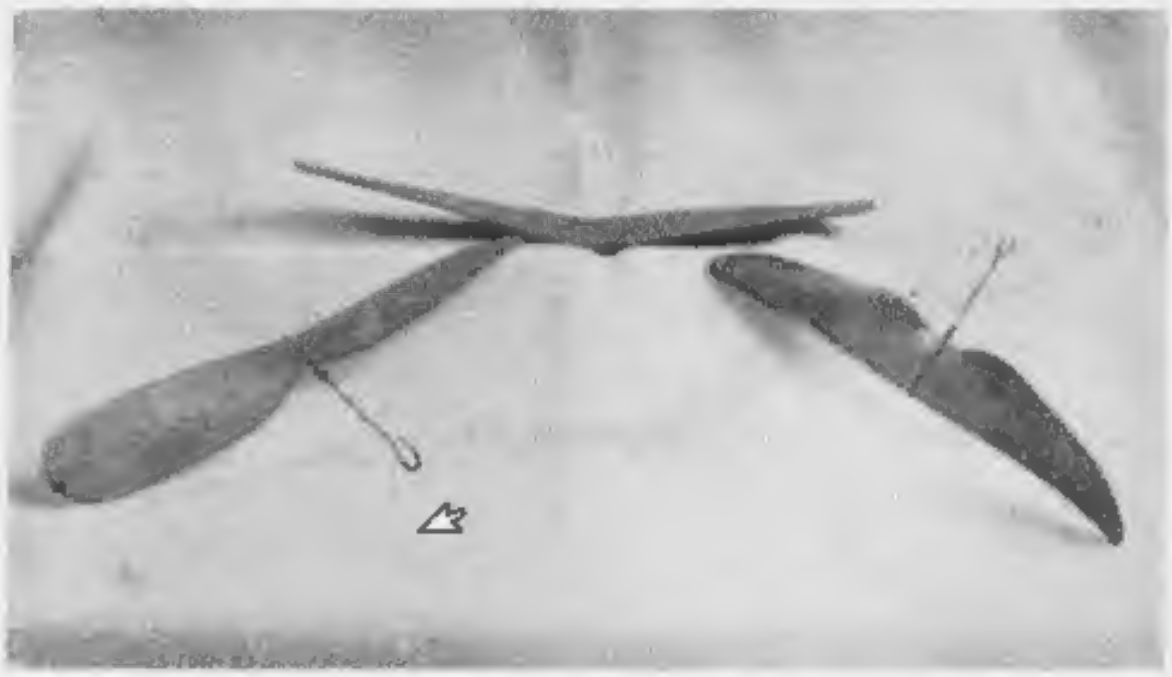
I do not remember a model being lost in a thermal, but we often lost our 'planes over the Avon Gorge and Gully. Occasionally the club went to Lansdown and Bath to compete with the Bath Club. They had a Mr. Cross, who flew twin propeller pushers fitted with a fin at the nose—and a wire bumper. These models were great flyers and took some beating, for they always went off with the wind. The propellers were huge whitewood logs with a pitch *a la U.S.A.*, but could they push? Some of us used to pick up useful 5s. pieces in small envelopes as prizes.

In 1913 we had a great meeting at the Bristol Zoo, when our first hydroplane left the water and flew. The floats were identical with those now in use. We had gone through the process of trying out ping-pong balls and pieces of cycle tubing with valves tied in. There was endless scope for invention, and I recall creating a hydro-terra-aeroplane—and she flew. The wheels dropped after R.O.W. and were held in the new position by metal ratchets, the release being arranged by means of threads unwinding off the prop. shaft. At Filton, near Bristol, the club met several times, but we little thought of that great company (Bristol Aeroplane Co.) growing out of the little sheds. The last pre-war competition, I remember, was a grand one at Ashton, Bristol. Real fuselage machines were there. My old "Rook" showed its paces and won the first prize in its class—as a matter of fact, the prize money was sent to me five years later (1919) by our most excellent and honest secretary, Tivy. The wings and a part of the fuselage are still in my possession. She won on design, R.O.G., longitudinal and lateral stability and landing.

There was also a looping contest, and I believe House did sixteen consecutive loops. My looper finished in an elm tree—where some months later I spotted its poor skeleton as I marched on the parade as a soldier. *Flight* and the *Aero* used to print accounts of our doings. How we thrilled to read of Mann and Grimmer and Houlberg (with his back-swept wings) and other stars!

Then came the war. During those few pre-war years I had seen great strides made in aviation. I had personally met most of the great flying men—Cody, Bleriot, Latham, Grahame White, etc. Can you imagine, my readers, how thrilled I was to shake hands with Cody? Other than my hop in the glider at Bath, my flying had consisted of dreams and models.

1919 saw me back in England stricken, in some ways, but still with "Aeroplanitis." Here I connected up at Sheffield with Mr. Cudworth (who is also still going strong I understand). We flew models at Endcliffe and we did try to form a club. To help the personal



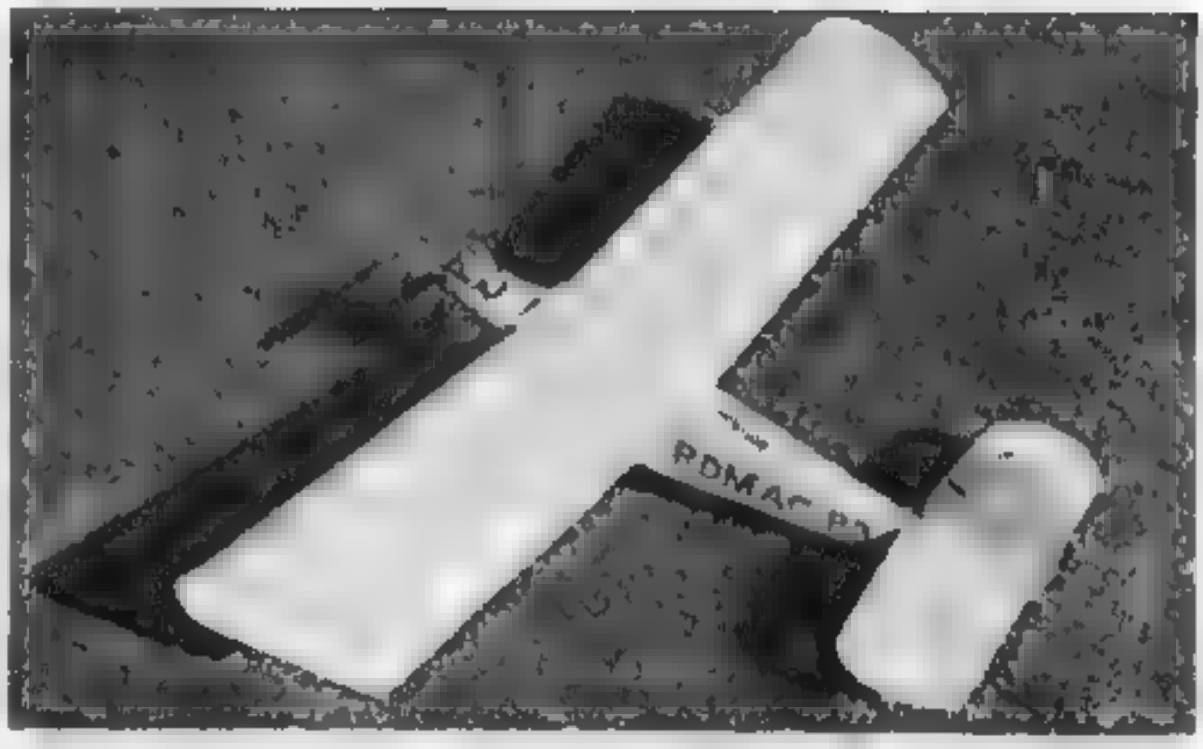
1914 ——— 1919

exchequer I made 3,000 models of a pre-war type and disposed of them in Sheffield within two years. These 'planes were of the 1-1-1-0 type, and I made six dozen complete 'planes between 6 p.m. and midnight on several occasions. I found that I could sell as many as I could make—because, I suppose, they would really fly. As I have always hated repetition, I was glad indeed to be a free amateur again. 1922 saw me still making and experimenting at Sunderland. Instructional classes were held for scouts, and groups of blind children were also shown the wonders of the aeroplane by handling a specially constructed model.

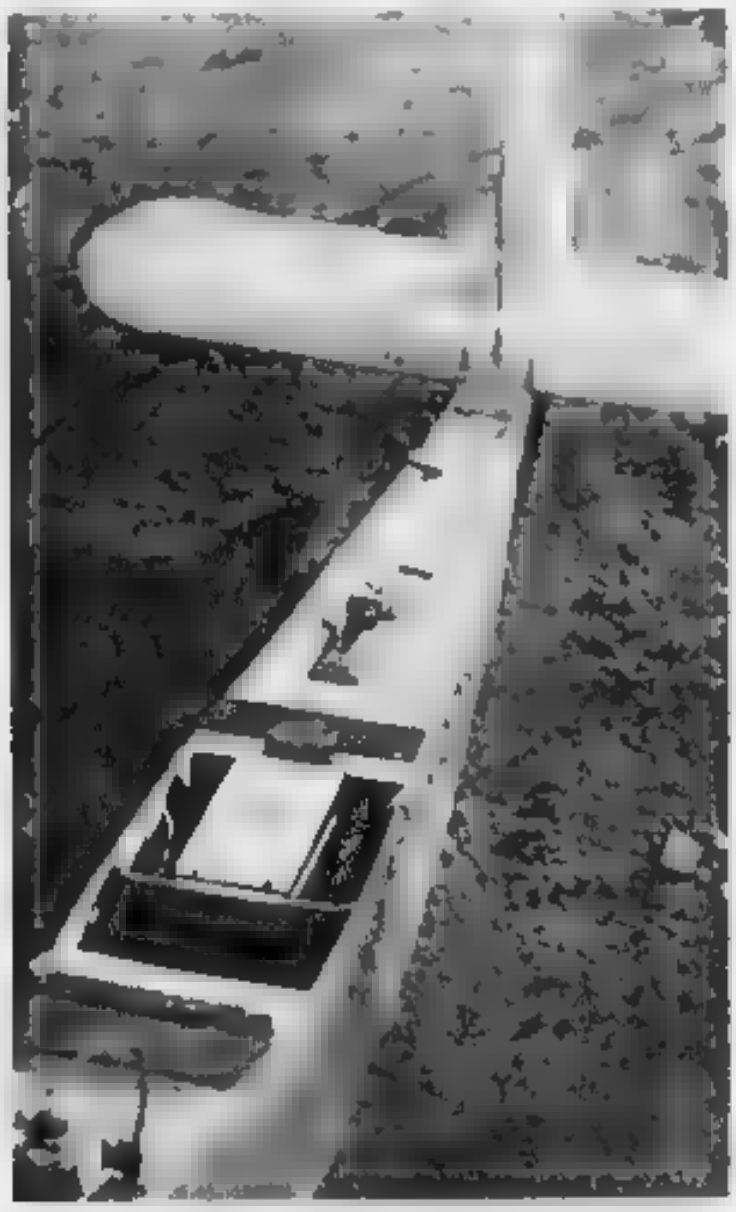
Since 1926 my activities have centred around Reading

"PRE-WAR" 1939

On this page are shown two photographs of the author's recently built patrol 'plane, which is equipped with a camera. At right is shown a general view of the model, which weighs 3 lb. complete with camera, and is powered with a 2.5 cc Gnome engine. In the photograph below may be seen the top of the camera, and at back the tabs of the film pack whilst on the top of the fuselage can be seen the time switch used for cutting off the ignition and operating the trigger of the cam. To



and my keenness has never wavered. Groups of boys have been instructed at the Y.M.C.A. and elsewhere and the 14th wing of the I.M.A.C. was formed, but it died. Now in 1939 there seems a hope that the R.D.M.A.C. may really get down to it in Reading. We have some promising members, the stalwart being F. C. Handler, whose exquisite workmanship is well known. The club has had films, exhibitions, instruction classes, competitions and has cups to win, but I am wondering, how many really have "Aeroplanitis"—time will show. The development in petrol 'planes has intrigued me, and



I have been fortunate in building several fliers, including a rubber, a 10 oz. camera. The 'plane is a straight-forward high-wing with a generous surface. Under the centre of the wing seating the fuselage is screwed on the camera with lens pointing through a hole on the port side is slung by aluminium supports. The camera is an old one which I purchased cheaply—there is no name upon it—but the shutter is excellent and self setting on a trip device. Speeds are 1/50 and 1/100 sec. with apertures of F.8 and 22. A standard film pack of twelve exposures fits into the back of camera and allows easy change by pulling the paper tabs. The shutter gear is quite simple and consists of a strong waxed thread from a projection on the moving arm of the timer, and passing through a suitable hole in the top of the fuselage to the camera trigger. It is arranged that about 2 sec. after the ignition has been cut off the thread releases the shutter and exposes the film. Upon landing it is only necessary to pull tab of film pack and set timer for another flight and exposure. The camera can be removed in a few seconds if desired. So far circumstances have only permitted me to make two exposures, and both were at a low altitude, but these have proved that the idea is a practical one and the model does carry the camera all right, although it is only powered with a 2.5 cc. Gnome engine. Total weight with the camera is 3 lb.

Now, as I look back over the last thirty years, I have memories of flying thousands of miles over clouds, seas and foreign lands. I have glided over the Dunstable Downs and loved it all. Aero meetings and great pilots have added many thrills to my life and, incidentally, troubled my early dreams. The joy of making, breaking, devising, flying instructing have been mine, but still ideas come to be tried out.

Finally, may I say how I enjoy attending a big rally and meeting a few old cronies, and feeling proud too of the success of the younger generation. Although a little "thin on the top," I hope to carry on indefinitely with what I consider to be a fascinating hobby. Here's to old friends and "Aeroplanitis." Success to THE AERO MODELLER.

1939 ——— ? ? ? ?

A DUMMY AIR-COOLED ENGINE

By C. F. COMPTON

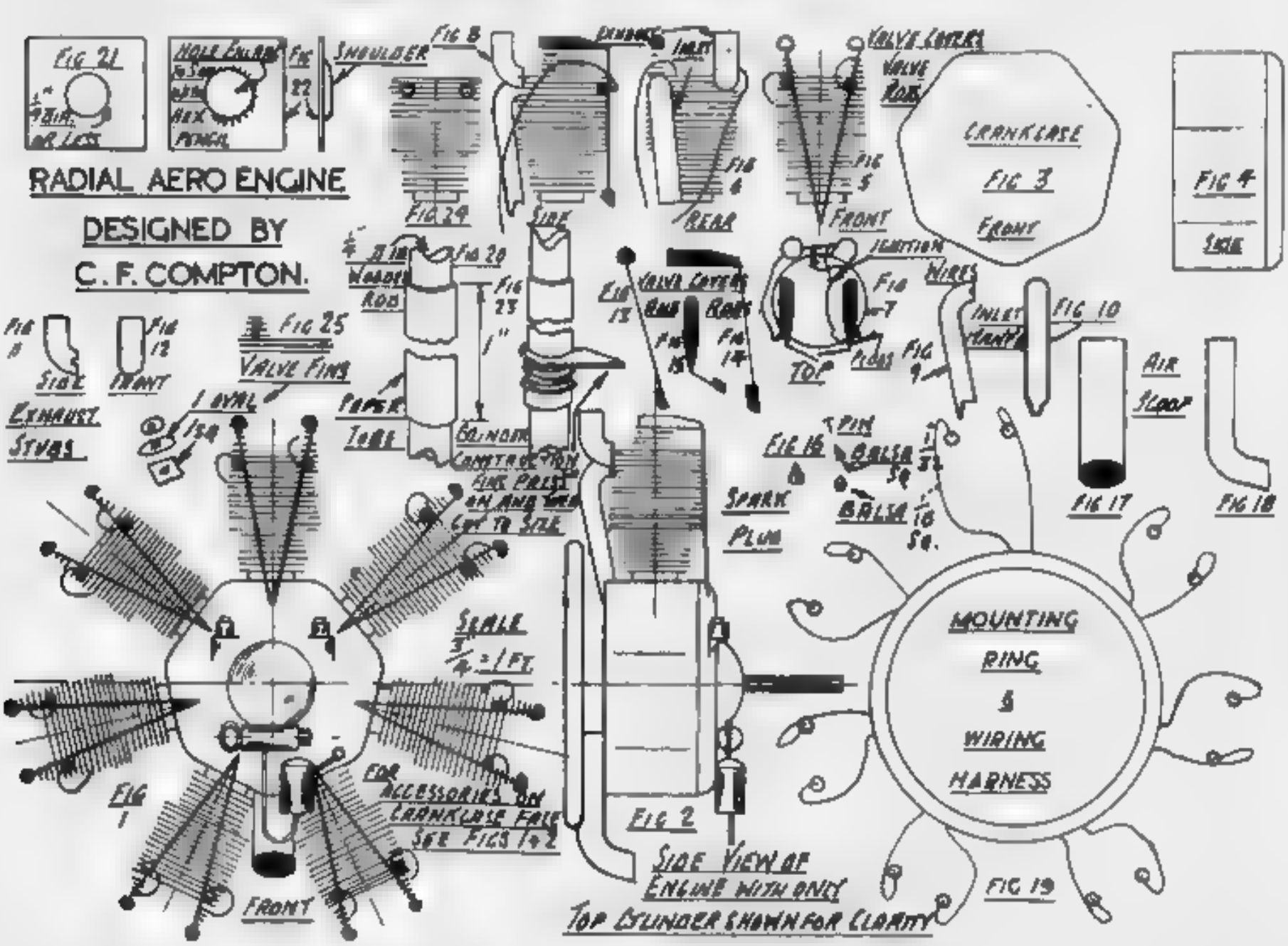
THE model described here is based on the 215 h.p. Armstrong-Siddeley "Lynx" engine, and is ¾ in. to 1 ft. scale. The model weighs 44½ ounces, but may be lightened considerably by making a hollow crankcase (necessary for a rubber model), and by economy on other parts.

The crankcase is made from a piece of balsa 1¼ in. × 1½ in. × ¾ in. A circle, 2⅞ in. diameter, is cut out of the largest face, and seven segments marked out from

Valve rods are made of [illegible] pins of the motor is [illegible] (See Figs. 1, 2, 5, 6, 7 and 8). [illegible] aluminium, as crankcase.

Valve covers are made from [illegible] balsa, each one being ⅞ in. long, and [illegible].

Inlet and exhaust pipes are [illegible] the inlet being painted aluminium and exhaust black. (See Figs. 9, 10, 11 and 12).



front view of the plan (Fig. 1). [illegible] cylinder is 51 8/7° apart. Pattern [illegible] taking a ¾ in. × ¾ in. flat, as shown in Figs. 2 [illegible] filled in black), and refer to Figs. 1 and 3 for front view. Cut away front to [illegible] leaving a flat ½ in. in centre. (See Figs. 1, 2 and 4).

Cylinders are made by carefully studying Figs. 5, 6, 7 and 8, also, of course, Figs. 1, 20, and 21 to 24. These explain the construction. Paint crankcase aluminium and fins black with Indian ink.

To aid final rigging, you can mount the engine on a rod which can be revolved as you work round the engine.

Valves are made from thin card, and painted with Indian ink.

Spark plugs are made as shown in Fig. 16, and painted black.

Fig. 19 shows mounting and ignition ring, which can be made either from ¾ in. diameter birch, steamed, or balsa in two sections. Paint black and glue carefully on to inlet pipes. (See Fig. 2).

Ignition wires are made from heavy thread or fishline. (See Figs. 1, 2 and 19).

Accessories are shown in Figs. 1 and 2, and are made of balsa scrap, card and pins, paint aluminium, and brackets black.

Air scoop is cut from balsa oval section; paint aluminium, except for entry, which is black.

TOC, ACK, TOC, ACK

By ARTHUR MOUNTSTEPHENS

Job smiled. "Toc, Ack," he said, briefly

ABOUT the only thing our club hasn't got is a tank for water 'planes. That doesn't matter very much because we haven't got any water planes either. At least we hadn't until recently, when a new member, transferred by his firm to our area, brought a seaplane with him. There isn't a decent pool in the whole of the town, except in the public park, where flying is taboo even in deserted hours. In fact hard cricket balls fly in its most crowded areas.

Sparkes, the seaplane owner, asked Job and me to his house one evening to view his seaplane, which since its arrival had graced the drawing room, to the utter disgust of the chap's wife.

As you know, Job is our prize member, and when he has a hand in things something startling usually happens. The same thing applies to his son, Amos. In this affair of the seaplane, Job and Amos and fortune contrived together to make as amusing an incident as you would meet anywhere.

Once inside Sparkes's house, we were treated to a view of a rakish-looking affair with narrow floats.

"Cor!" ejaculated Job, "I should like to see that go."

"Yes," responded Sparkes, "it's very, very fast indeed."

Job looked pensively at the ceiling. "Well," he muttered at last, "I don't see why we shouldn't see it go if we're all very keen."

"Rubbish!" I put in, "there's no place within miles."

Job smiled. "Toc, ack, toc, ack," he said briefly.

Sparkes looked at Job as though his opinion of Job's sanity had increased.

"Toc, ack?" I echoed. "What's that got to do with it?"

Job looked impressive. "I think you are aware," he said, "that a little way from the town there is an estate owned by one, Colonel Ram. In the estate there is a lake, which on summer evenings has the appearance of a sheet of pale pink sea. We could use that." He paused.

"Oh yes," I said, "and I suppose the Colonel would just put the flags out for us, lend us a boat, and after seeing the 'plane fly, go down on his hands and knees and apply for membership."

"Don't be silly," said Job.

"But what has toc, ack got to do with it?" enquired Sparkes curiously.

"Well," said Job, "I happen to know the lodge-keeper very well. The Colonel is away on his holidays and so are most of the staff. The rest live in a wing away from the lake."

"But how about the agent? Doesn't he make a daily inspection of the grounds in his car?"

"Yes," replied Job, "but that is where toc, ack comes in."

"What the dickens!"

"My heliograph," replied Job. "Which, as you know, young Amos can work very well."

"Yes but . . ."

Job silenced me. "As you know, the main gates are commanded by a high hill, which is in view of the lake a mile or so away. We could post Amos on that hill with the heliograph. We can both read morse. If any car came through the gates we should get a signal from Amos and be away from the lake before the car reached it."

Light began to dawn on me then. Job has a good heliograph, on which he, Amos and I have practised sending and receiving morse messages.

Sparkes, who had been listening to all this, gave a sudden whoop. It all sounded exciting to him. What either I said afterwards made no difference at all. The thing was fixed.

On a cloudless morn of cars sparkling in the sunlight and heat shimmering over the purple roads we set off for Colonel Ram's estate. We carried the seaplane and sandwiches. Amos carried the heliograph and chewed chewing gum.

Perched on the hill, where we could see the shining lake in the distance, we left Amos and the helio. Before we went I insisted on having stakes hammered in the ground and the helio's tripod legs fastened thereto. In the light of past experience that seemed to me to be an essential precaution. I have had an impression when receiving from Amos on past occasions that he was dancing with the thing. But they tell me one often feels like that when reading signals.

I suggested staying there, but that was overruled, so I left our fate and the whole future of our club with Amos and a piece of glass. Colonel Ram owns our flying field, and although we pay him a decent rent, if our escapade were discovered there would be trouble. The Colonel is very touchy about his lake.

At two o'clock we reached the water. Never had I seen the place look better. Not the faintest ripple stirred the pale blue water. Not a single fish nibbled at a gnat.

At two fifteen we were to receive our first signal from Amos. We intended taking it in turns to watch the distant hill for the helio's flash. If Amos saw a car enter the gates, he was to flash us the one word "Tata," and follow it by an open mirror.

Toc ack toc ack, Job had said. "He can't go wrong with that. It's all alternate dots and dashes.

His quarter-hour O K. signals were to be anything of his own choice Thus, thought Job, he could practice signaling and kill two birds with one stone.

Everything seemed all right as we took his first O K There was a punt tethered at the spot we had chosen Yet, as Sparkes prepared to trim his model I couldn t help feeling uneasy

The trial flights went swimmingly Sparkes thought he had never seen such a charming stretch of water

In due time the spear of light, leaping across the valley, spoke to us again. Job s voice called out to me the letters of the phonetic alphabet

" Hat, ack, don, stop, ink, cork, eddy, stop, cork, rat, eddy, ack, emma, stop."

Had ice cream,' interrupted Job with a grunt " What's the young fool up to now, leaving the signal? We ought to have tethered him, not the tripod '

I thought so too. But the light flickering on reassured us. Amos had a small audience of boys, and had sent one of them down to the road for his ice cream

Before the next signal came we had another spell of flight. Everything was working to plan

The time of our intended departure was still an hour away, when we were surprised to note that the messages were coming by an expert hand that was clearly not that of Amos We had a job to keep up with them Our doubts were set at rest by the light, which told us that Amos was being assisted by a gentleman who had happened to come along

Amos apprised us of the fact that he'd had three more ice-creams, he d eaten his lunch, swallowed a piece of chewing gum, and punched one of the boys on the nose because he'd thrown a stone at the mirror of the helio

Between reading the signals we watched the model perform, with one eye, of course, always on the distant hill

Ten minutes before the next O K. signal was due the light leapt at us again suddenly

" Toc, ack, toc, ack " Our danger signal

The 'plane was hastily packed, and within three minutes we were walking innocently along the estate roads On the way we met the agent's car. That had been the reason for the alarm. Amos had done his work well

We met him at the appointed place on the main road. Job gave him a hefty pat of congratulation on the back, whereupon he informed us that he'd swallowed another piece of chewing gum

" That last message came over pat," I said. " The warning, I mean

" Oh, yes," responded Amos. " That was the man I told you about He said he had been in the Army and knew signalling I told him I was sending messages for practice to some chaps a mile or so away. He wanted to try, so I let him When I saw the agent s car come in the gates, I told him it was time for me to close, and would he send our closing-down signal—Tata."

' Well, it was a bit dangerous letting a stranger do it, ' reproved Job. " Still, everything worked well '

We really did not realise just how well things had worked until later. That was when Job met his pal, the lodge keeper. We didn t tell him what we had been doing but were surprised to hear that the Colonel had made an unexpected return to the estate the previous evening

After we left the [illegible] Colonel

What luck the Colonel had in t was keel near his lake that afternoon What luck we could not get him on the roads in the estate!

Then a sickening thought came I Suppose the Colonel had been looking out of the window. Had he, and had he seen all?

Job, who was looking skywards, gave a sudden snorting kind of hiccup He grabbed the shoulder of Amos.

" That Army chap who helped you What was he like? "

" Nice chap," said Amos as he searched for some description of his friend.

" Did he have a beard and a purple mark on his cheek? " asked Job.

" That's funny, dad, he did "

Job spluttered!

" What's the matter? " we asked

" Nothing," he said, and roared " Only the bloke who signalled us that the Colonel's agent was coming was the Colonel, himself '

DEFINITIONS

By A. HAWKES

THE following definitions have been carefully prepared for the guidance of the beginner. After a careful study of them he should have no difficulty in understanding the finer points of model aeroplanes and those who fly them. Or should he?

Airscrew-folding: A propeller with hinged blades, so that in the event of a crash they are not damaged Popular in Scotland

Banana Oil: A liquid used for removing little patches of polish from the dining-room table

Club Treasurer: Usually held to be one of those who taught the Forty Thieves their business

Committee Meeting: See " Thermals "

Flying Ground: A field littered with odd lengths of balsa, rubber, etc

Free-wheel: A device fitted to the propeller shaft, so arranged that it occasionally slips, giving warning of the model's approach

Knock off Wings: Not to be confused with knocked-off wings

Plans: Drawings prepared by amateurists

Propeller Shaft: A bent and twisted piece of wire on which the propeller revolves

Retractable Undercarriage: Latest development in model flying There are two varieties: (*a*) those which at the critical moment refuse to retract, (*b*) those which collapse before the model takes off

Rubber-tensioner: A gadget fitted to the propeller shaft It is so arranged that when the motor is fully wound the propeller will not turn When the model is placed on the ground—pending further investigation—the propeller immediately starts and the model makes a short but interesting flight amongst any spectators, 'planes, bicycles, dogs, etc, that happen to be near-by.

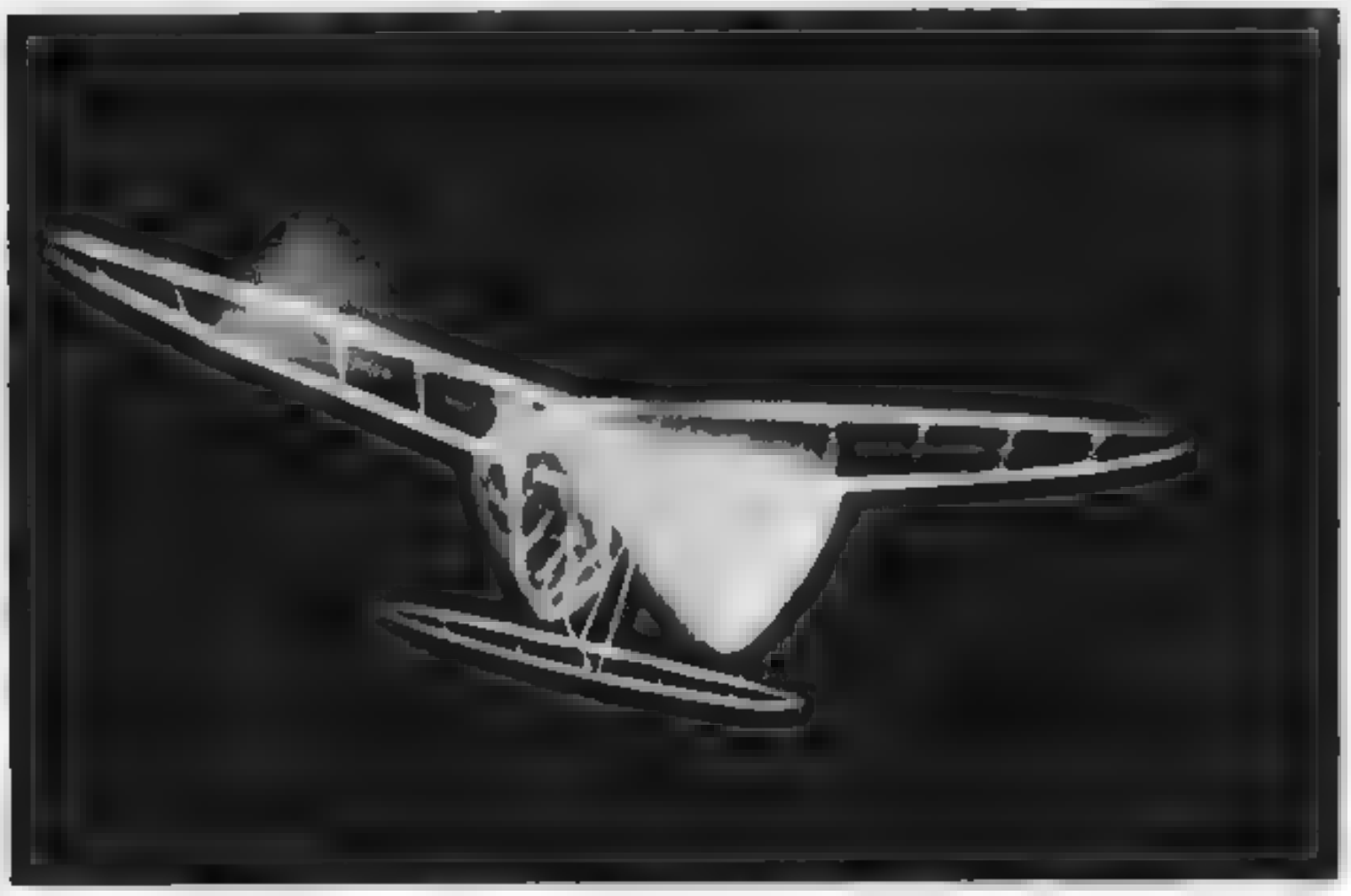
Thermals: Hot air

Time-keeper: A person of feeble intellect and with defective eyesight

Unorthodox: A person who winds his model by hand

" *Votas Cum Cura* ": Motto of a select band of aeromodellers. Means " Never leave before closing-time."

MICROFILM COVERING —— By "PETTICAN"



A remarkable photo of a microfilm model in full flight. Exposure of the film was 1-25 second, and in that time the airscrew has made 1-10 of a revolution. Its r.p.m. are therefore 150

Below are shown typical microfilm models, photographed at a meeting held at the Albert Hall early this year

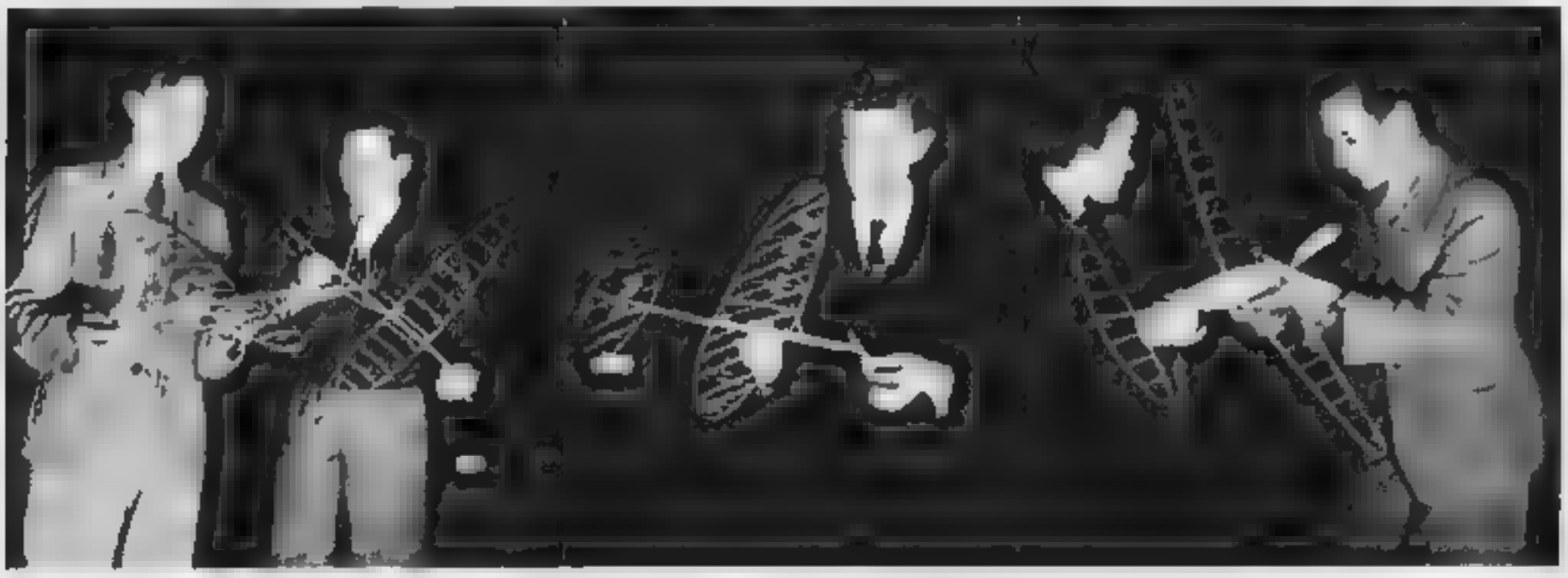
THERE are several makes of microfilm solution on the market which are very good, but if at a push these are unobtainable, fairly heavy dope to which pure castor oil has been added, about a teaspoonful to a 2-oz bottle of dope has been found by the writer to give a fairly satisfactory film, but great care has to be taken when lifting the film from the water, also it has a lower flash-point than the genuine article.

When spreading the solution, do so on a large surface of water. I use the community bath tub, well scoured and freed from soap, etc. This is filled with warm water at about 60°—70° F. Let the surface of the water become absolutely calm. If the taps drip, stop them up, because the ripples caused by the drops of water help to stop the solution spreading evenly.

Now to pour the solution into the water. Fill a teaspoon about one-third full and, holding the spoon about ½ in. above the surface of the water, allow the solution to pour off in a continuous stream for about 1 ft. or 18 in. along the surface. If the flow should break, where the two bits meet another join will be seen a thin line. This line is generally weak and should not be in the frame.

See that the film is about 2 in. larger in circumference than the frame. Wait until the film has crinkled all over and it is then ready to be picked off. This is the hardest part of the process to do, and yet is extremely easy when you know how.

So first, a word about the frame will not come amiss. The writer uses ⅛ in. diameter stiff copper wire bent to an ellipse, about 18 in. long by about 10 in. to 12 in. wide,



but of course the size of the frame is decided by the size of film required. This is fitted with a handle at one end set at an angle of about 30° to the frame (see Fig. 1).

The method of lifting the film used by the writer has proved itself to be extremely good (see Fig. 2), and in his opinion is better than placing the frame *under* the film and trying to lift it out, because by this method the suction of the water very often pulls the film so that while the film has adhered to one side of the frame, it has pulled off the other side. So try this way: Hold

FIG 1

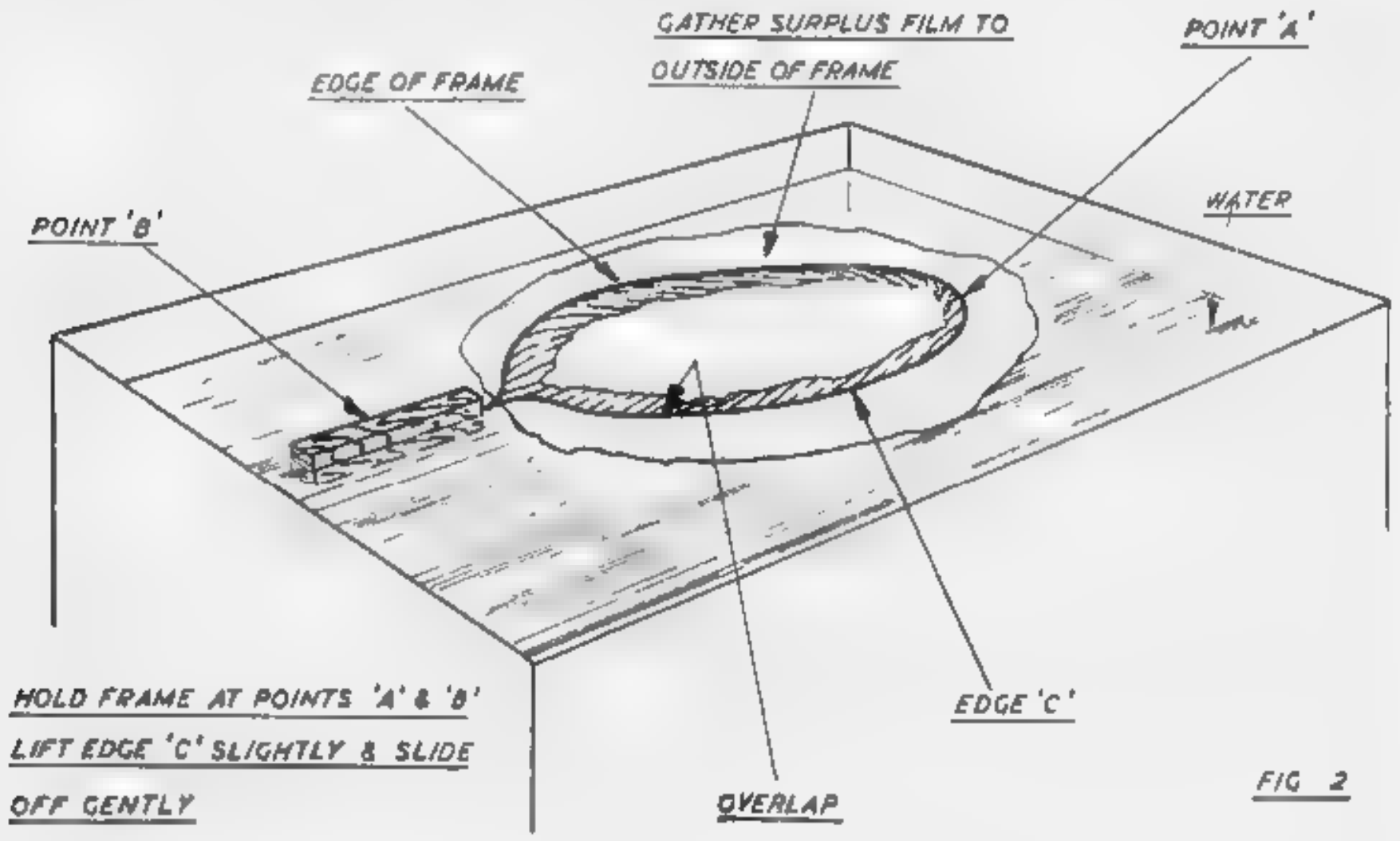


FIG 2

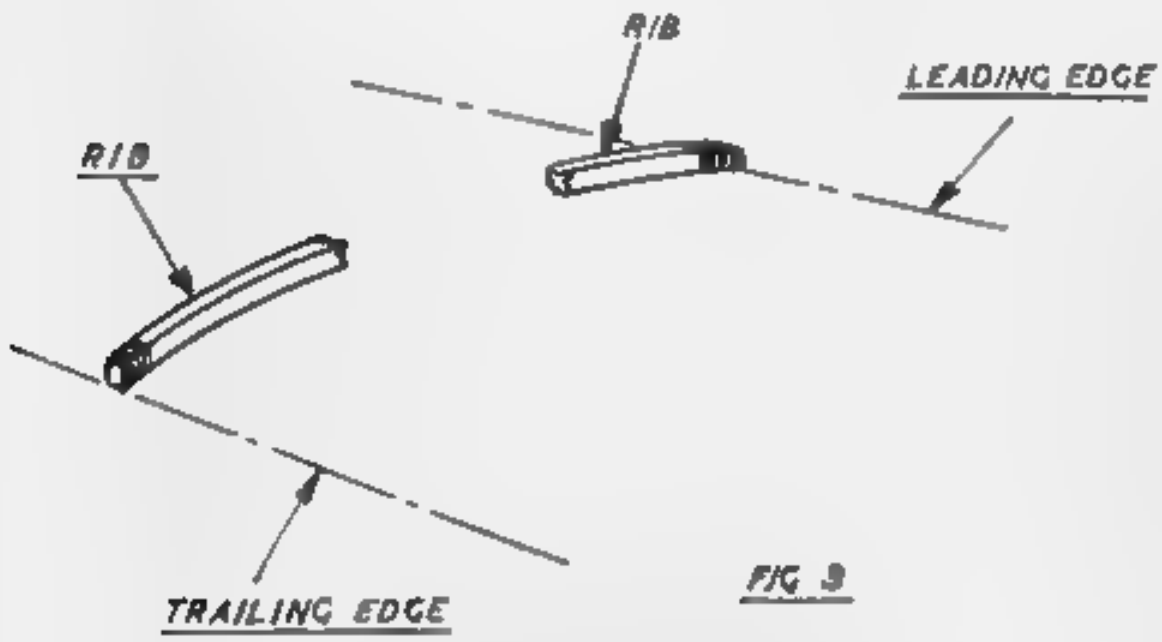


FIG 3

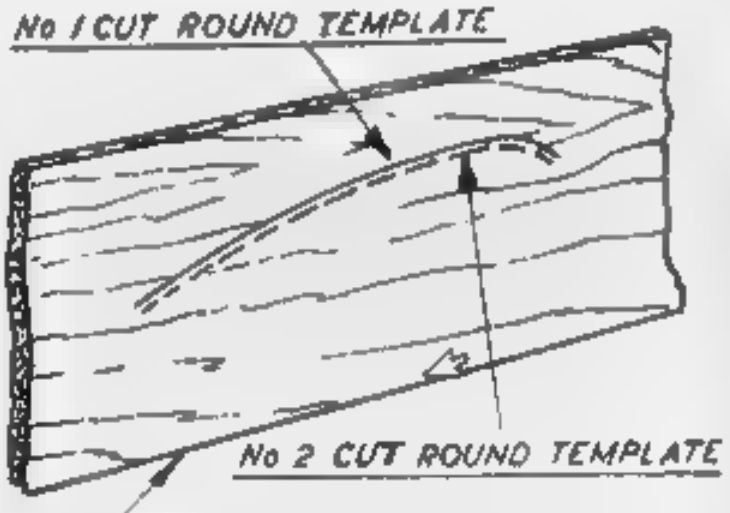


FIG 4

the frame on *top* of the film, so that it rests lightly on it, then gently dip the frame first one side then the other, just enough to cause the surplus film to overlap about 1 in. over the wire. Then gather or push with your free hand all excess film to the edge of the frame.

Now comes the tricky bit; holding the frame gently but firmly at both ends of the frame tilt one edge just off the surface of the water, and slowly slide the frame along and upwards just as though you were sliding a transfer off a piece of paper. The writer never fails to pick the film off by this method. Hang the frame up to drain, and when absolutely free of water is ready for use.

The wings, etc., can be made far more rigid without extra weight if the leading edges and trailing edges are

set on edge (Fig 3) In fact, thinner and lighter stock can be used if this method is followed Ribs can be cut to shape by making a template to the shape of the upper camber and, cutting round the top, take away the template and making a second cut parallel to the first one on the inside of the rib (Fig. 4)

Good thrust bearings can be made from flattened $\frac{1}{16}$ in diameter aluminium tubing. Wing clips can be made by cutting thin strips of aluminium from a Durofix vegetable paste container, and bent to shape round the motor stick When making the motor stick and tail boom use thin gauze or silk strips to bind the blank round the dowel, string or thread marks the wood. Make tail boom hollow, so that the empennage can be carried separate, also a spare one in case the "nake" breaks (Fig 5)

Cover each piece separate and do not tighten until assembled Cover by wetting framework with saliva, place it on a damp flat surface and place frame of "nake" on top Blow round framework, so that the "nake" adheres to the damp surface, and trim round with a hot (*not red*) wire about 1 in away from the framework to be covered A more even covering with less sag is got by this procedure.

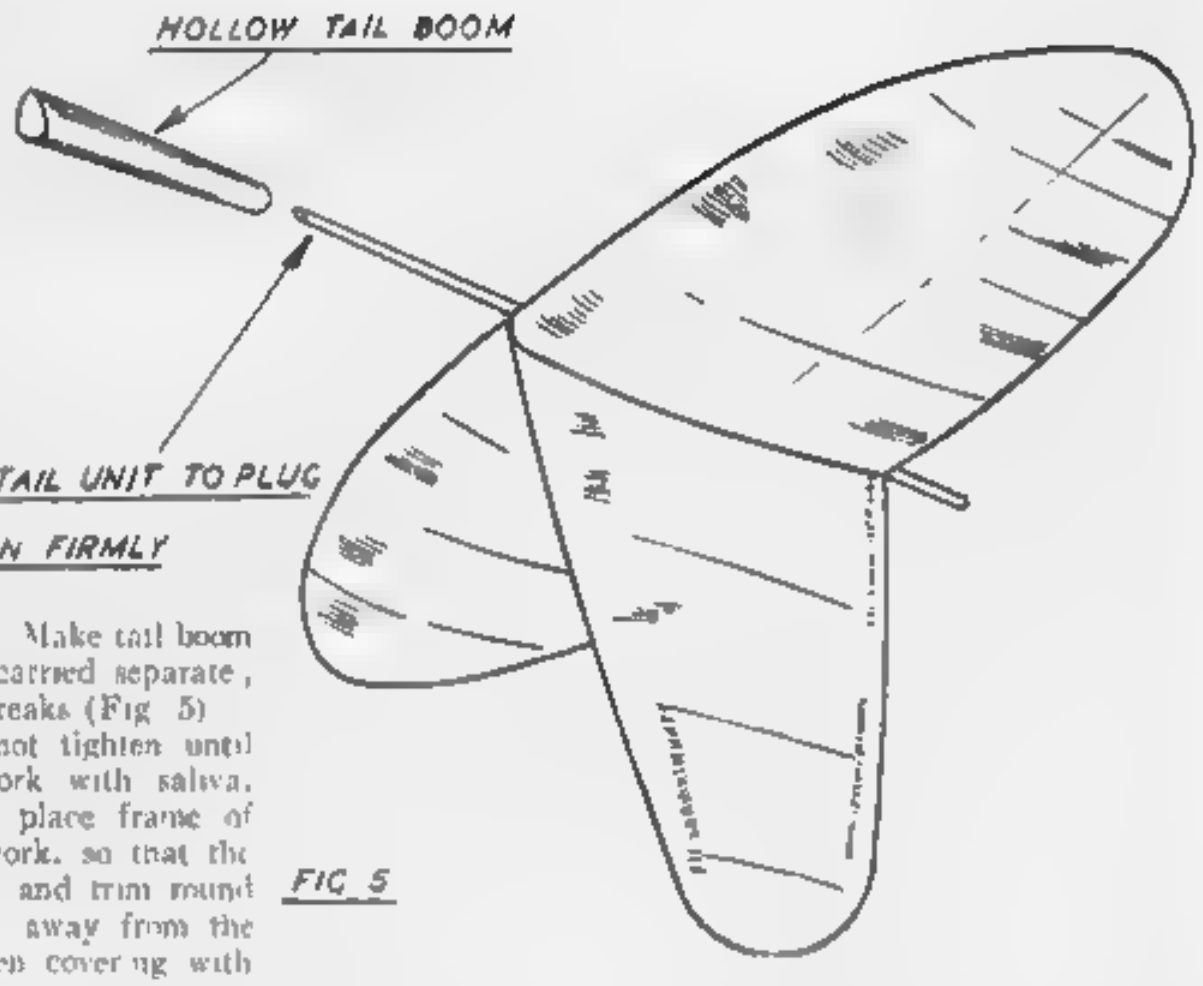
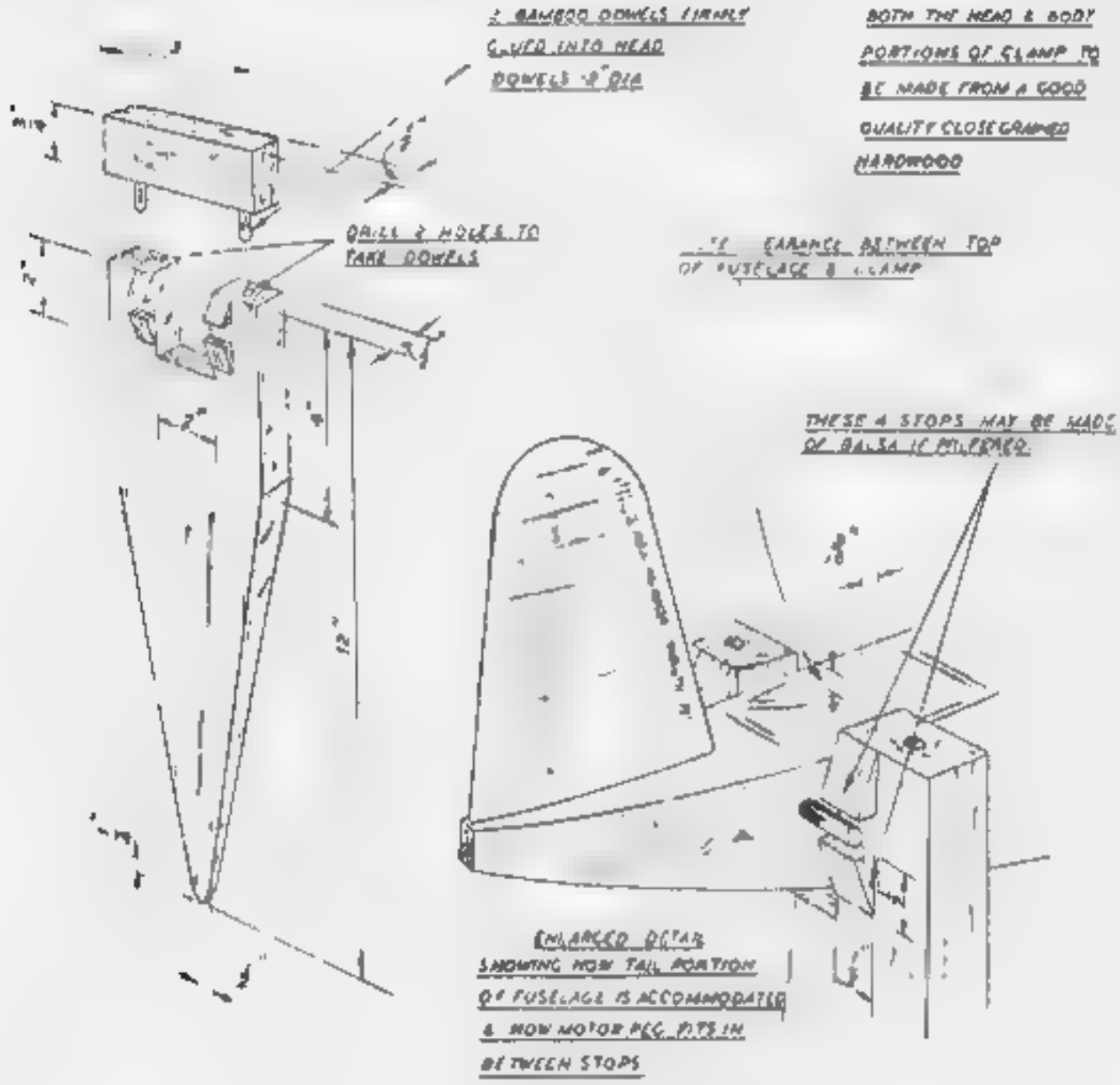


FIG 5

SOLO WINDING

By T. R. CARROLL



THE appended sketch illustrates a device designed to facilitate single-handed winding. It constitutes a form of clamping arrangement and comprises a main body portion embodying a rectangular cut out at the top, into which is fitted the tail end of the fuselage.

Four small blocks, suitably arranged so as to engage with the motor peg passing through the fuselage, serve to locate the model during the winding operation and also resist the torque of the motor It will, therefore, be seen that no stresses are imposed on the fuselage during winding, but that all loads are transmitted through the motor peg and into the clamp. A small cap secured by two bamboo dowels is fitted to the top of the clamp to prevent the model being catapulted out in the event of the motor peg breaking during winding When in use the clamp is driven firmly into the ground, for which purpose its lower portion should be wedge-shaped, as shown

"FIGHTERS and BOMBERS"

By

PETER GARROD CHINN

The first five sketches illustrating this article are by the author. The last four sketches are by Mr. Jobson, who painted the front cover for this issue.

RECENT months have produced many new and interesting designs for the scale modeller.

Most of these are, of course, fast military types, the development of new commercial aircraft having been somewhat retarded by the extensive rearmament programmes now adopted by the world's main aircraft producing countries, and in this article I shall deal exclusively with fighters and bombers.

Nevertheless, the flying-scale enthusiast will find many of these machines to have characteristics which mark them as making good flying models.

To start with two new British types, we have the Boulton and Paul "Defiant," and the Hawker "Hotspur," both monoplane two-seater fighters, and designed to replace the old Hawker "Demon" biplane.

For some time now, new types from the Boulton and Paul factory have been rare, although it will be remembered that they produced some very fine aircraft just after the Great War, including a twin-engined biplane, projected for a non-stop Atlantic crossing, which, in design, was quite in advance of its time.

Recently they have come to the fore again with the "Defiant," which, powered with a Rolls-Royce liquid cooled motor, is said to have a maximum speed of 300 m.p.h., or about 120 m.p.h. more than the "Demon."

Like most modern warplanes, it is of all metal construction, having a flush-riveted stressed-metal covering and thus providing a very smooth surface.

The undercarriage is retractable, operating inwards, and has flaps fitted to close the wells. A power-driven observer's gun turret is situated just aft of the pilot's cockpit. The main dimensions are: Span 39 ft. 6 in., length 30 ft., height 12 ft., and wing area 250 sq. ft.

The Hawker Hotspur is very similar in appearance to the Boulton and Paul machine, since it has the same structural design in general, including a similar turret. It has a fabric covered fuselage, and is a little larger than the "Defiant," however, having a span of 40 ft. 6 in., a length of 32 ft. 10½ in., and a wing area of 261.5 sq. ft.

The landing gear is retractable, and the power unit is a Rolls-Royce engine of the "Merlin" series, which drives a de Havilland three-bladed variable-pitch airscrew.

All performance figures are, of course, as in the case of the "Defiant," withheld from the public, but the "Hotspur" is considered to be as fast as the "Defiant," and both planes will, no doubt, be well armed, and therefore should prove worthy additions to our Air Force.

The clean lines of these aircraft should make them suitable for flying model reproduction, and when scale drawings are obtainable, no doubt many modellers will be keen to construct miniatures of these two machines.

Recent years have made the job of comparing the fighting aircraft of different countries increasingly harder.

For instance, in this country the "Interceptor" is used, whilst in America the "Pursuit" type of fighter is dominant.

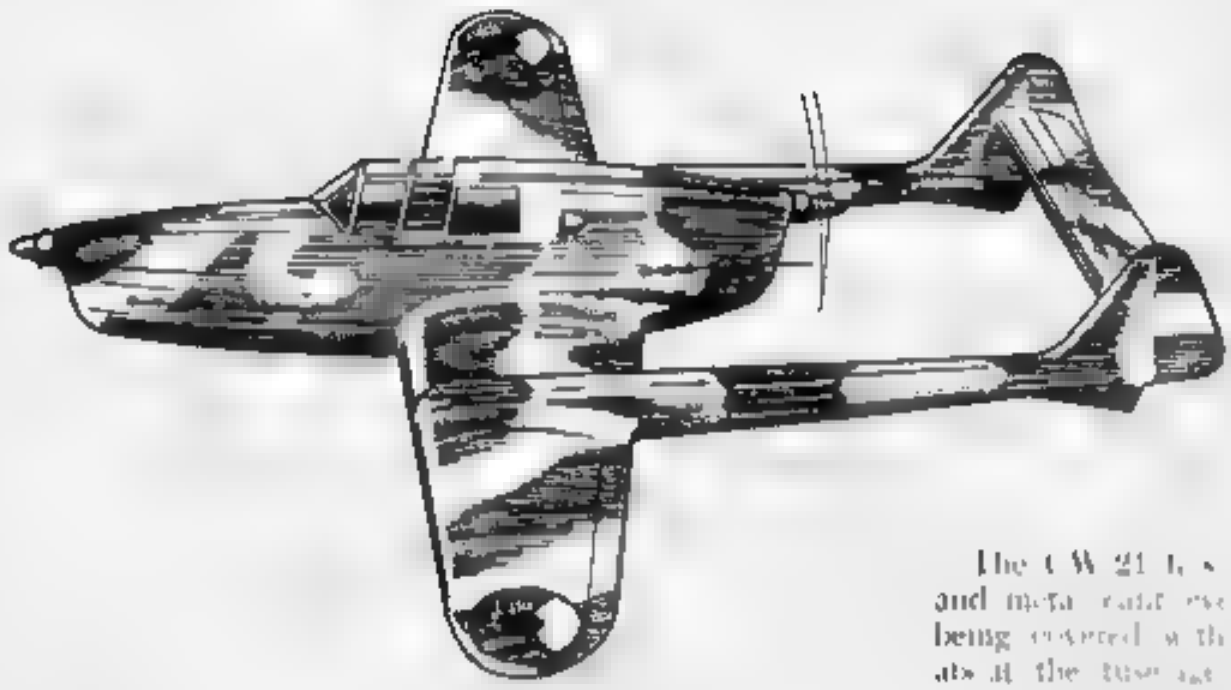
These are, of course, two distinct types, and cannot be classed as one for comparison, for where the former is designed to intercept the enemy at short notice, the pursuit is required to engage bombers perhaps hundreds of miles away, and range is therefore more important than climb. For example, the Seversky P.35, of the United States Army Air Corps, is said to have a range of 4,000 miles, as against the 800 miles of our Hawker "Hurricane," even though the speeds of both planes are about 335 m.p.h.

New fighters in the U.S.A., however, have tremendous climbing powers, but shorter ranges. The reason for this is no doubt due to the air expansion programme recently adopted by that country, which will provide so many new aircraft, as to render long range less important.

Among these new fighters are the Brewster F2A.1 Navy fighter, the Curtiss P.40, and the Curtiss Wright CW.21, all credited with an initial rate of climb between 5,000 and 6,000 feet per minute, which is about double that of most modern fighters.

The first-mentioned type, the Brewster F2A.1 has a range of about thirteen to fourteen hundred miles, and is said to have a maximum speed of over 850 m.p.h. It is used on United States Navy aircraft carriers, and is thus the world's fastest shipboard fighter.

The Curtiss P.40, illustrated here, has a maximum speed of around 400 m.p.h., and a cruising speed of 365 m.p.h. It is the latest development of the Curtiss Hawk 75, which was designed several years ago. With this reliable type as a basis for design, the Curtiss Wright Corporation have built the Curtiss P.36 fighter of the U.S. Army (one of which made a flight a few months ago at an average speed of over 350 m.p.h.), the P.37, similar to the P.36, but powered with an



It left is shown the Fokker D-23, and below the Lockheed XP-38.

Allison V-12 1,000 h.p. chemically-cooled motor, and one to the better streamlining afforded by this engine, faster than the former, and now the P-40. At the beginning of this year large orders were placed for another version of the Hawk 75 by the French Government, and subsequently one of this type broke into the news by diving at over 600 m.p.h.

Also there have been experimental publications of the Hawk 75 including a P-86 fitted with co-axial counter rotating airscrews, and another fitted with a special cowl and extension shaft to improve the streamlining of the radial engine. However since we are mainly concerned with the P.40, I will not go into details about the other types.

The Curtis P-40 is an all metal low-wing cantilever monoplane powered by a V-12 cylinder Allison engine developing 1,820 h.p. at 3,000 r.p.m., which drives a Curtiss constant speed all metal airscrew. A gear driven supercharger is fitted in place of the General Electric exhaust driven blower used on the P-37.

The electro pneumatic undercarriage is fully retractable, including the tail wheel. The cockpit equipment includes an air-conditioning system, which makes special flying clothing unnecessary, and the glass enclosure over the pilot's chest affords extra visibility.

An initial order involving some thirteen million dollars for these planes, has been placed by the United States War Department.

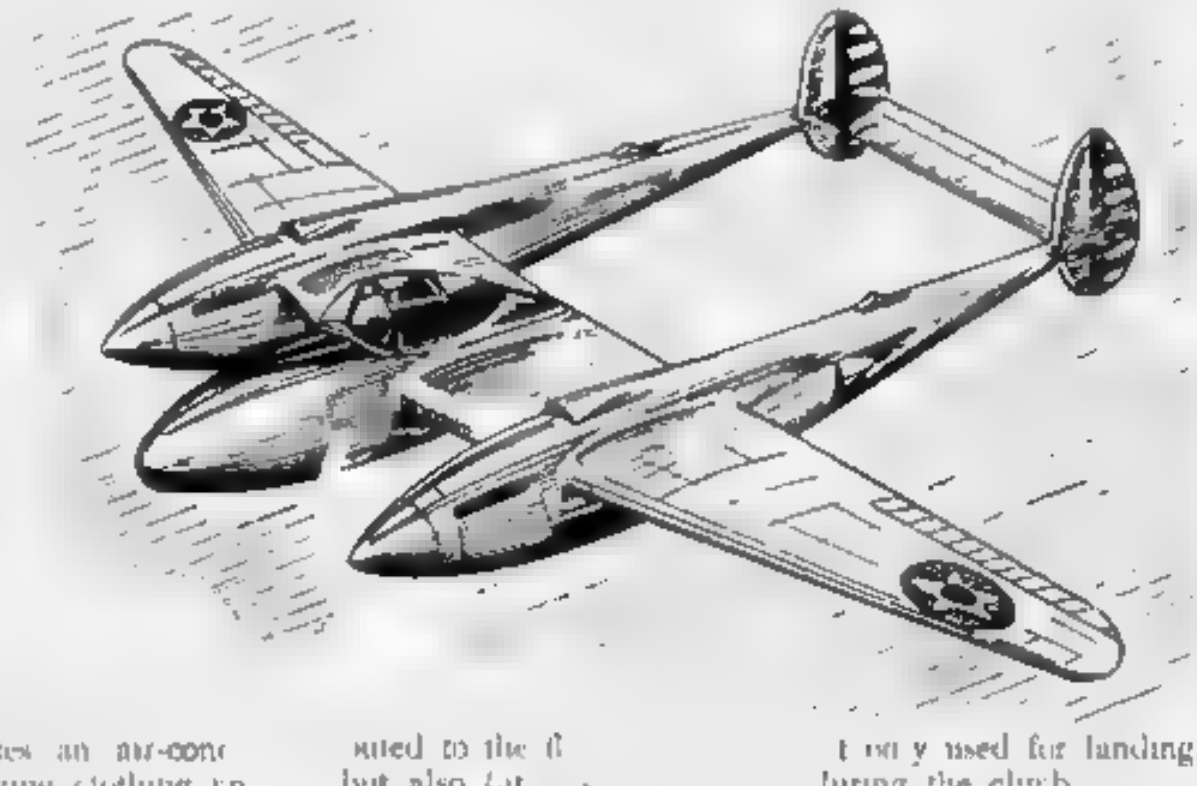
The comparatively large tail area, and the low position of the thrust line when compared with other low wing types, should enable a good flying model to be made of this plane. In fact, if the undercarriage were made detachable or retractable, it should be possible to make the thrust and drag coincide almost exactly. The plane is equipped with trimming tabs on its tail surfaces, and these could be incorporated in a model to advantage.

The Curtiss Wright CW-21 is a true interceptor, having the ability to climb to 20,000 feet in 5.8 minutes, a service ceiling of 35,000 feet, and a speed of over 300 p.h. This remarkable performance has not been gained without loss of range, however, this being about 650 miles.

The power plant is a Wright Cyclone, type R-1820-G5, rated at 850 h.p. at 6,000 ft., and delivering 1,000 h.p. for the take off. It drives a Curtiss triple blade controllable pitch propeller.

The CW-21 has a semi monocoque all-metal fuselage, and metal and wood wings and tail surfaces, the whole being covered with Alclad sheet. An interesting point about the fuselage structure is the inclusion of heavy armour plating around the back of the cockpit to protect the pilot from enemy bullets. The undercarriage retracts into housings in the wings, and is hydraulically operated.

The span is 35 ft., and the length 26 ft. 6 in., and with a gross weight approaching that of an ordinary fighter the flying weight of this little plane attains such a high [illegible] that it may be partly attributed to the fact that it is not only used for landing, but also [illegible] during the climb.



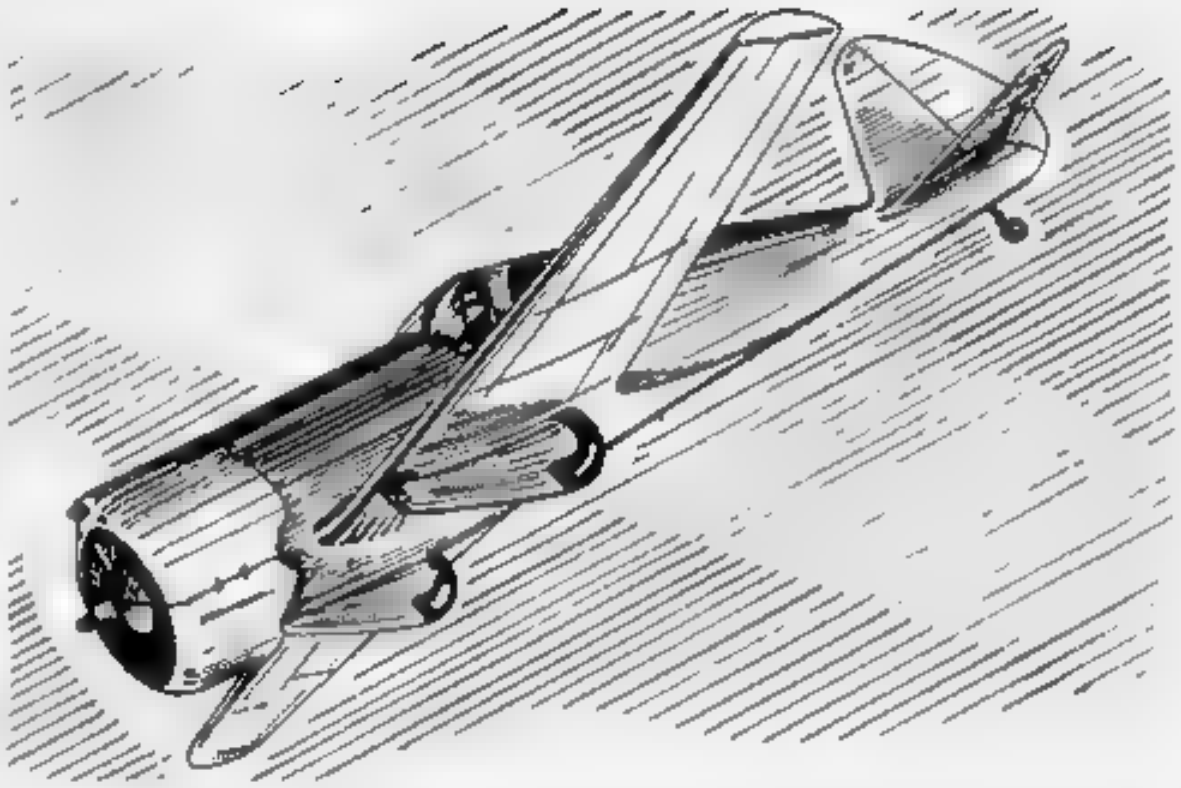
The large radial engine cowling suits the sleek lines of this plane, although [illegible] several design marks it as making a good flying model.

The undercarriage is placed well forward, and thus lessens the chance of "nose overs" and broken props. The stabiliser, although small, would probably not require enlarging, because of the relatively long tail moment with [illegible] the nose moment. Neither would the [illegible] as there is little area ahead of the centre of gravity to give a rudddering effect. Like the Curtiss P-40 the thrust line is in a good position to oppose it.

Builders of a miniature of this plane will be the possessors of a distinctive model, for although intended for export, this machine is America's first real interceptor-fighter.

Next, we have the Lockheed XP-38, an unconventional

At right is shown the Curtiss Wright CW 21, and below the Curtiss P.40



machine having twin fuselages and a central nacelle, an arrangement somewhat similar to the Fokker G.1 (Kemper). It was designed and built by the Lockheed Aircraft Corporation of Burbank, California, U.S.A., the firm that supplied the R.A.F. with twin-engined "Hudson" reconnaissance bombers, and is the first fighter produced by that [illegible]. Lockheed have made a good job of it, for the VP.38 is probably the most potent fighting aircraft ever built.

Unofficial reports credit the machine with a top speed of nearly 420 m.p.h. which, considering its power and clean lines, is not a too hopeful estimate. The combined output of the two engines is more than double that of a conventional modern fighter.

The undercarriage is interesting, inasmuch as it uses a steerable nose wheel. And as it is also retractable. The advantages of a tricycle landing gear are that it permits a shorter-landing run, since the brakes can be applied harder without fear of nosing-over, and also that it aids the take-off because the 'plane is at a reasonable flying position, the pilot not having to gain speed to raise the tail.

The effect of airscrew torque has been entirely eliminated, one of the Hamilton constant-speed, full feathering airscrews, and an Allison engine having been specially built to enable clockwise rotation to be employed on the starboard side. The engines use superchargers of the exhaust-driven centrifugal type, and develop 1,040 h.p. each at 17,000 feet.

The construction of the machine is [illegible] nacelle being built integrally with the centre section of the wing. The nacelle contains the pilot, two twenty-three millimetre automatic cannon and two fifty calibre machine-guns. Two more machine-guns are contained in the outboard wing panels. These are .87 calibre, and fire just outside the prop. arc. Thus the 'plane has a formidable armament.

The landing flaps are a new development of the Fowler type. That is they operate backwards and downward of the trailing edge, adding to the wing area, as well as increasing the lift coefficient. However, the rocking guide track posts formerly necessary, and used on the "Hudson" are not needed.

This 'plane should make an excellent flying model. Model designers will be quick to notice points of design which, not normally found on prototypes, are advantageous in a model. The dihedral angle, for instance, is sufficiently large as to make an increase unnecessary. The propellers are of reasonably large diameter, and could be made to revolve in opposite directions to counteract torque, as on the real ship. More power could be used than on a single-engined 'plane, and motor run increased by use of tensioners. The entire rear portion of the stabiliser is hinged to form the elevator. This could easily be made detachable, so that a larger one could be substituted for flying purposes, if necessary.

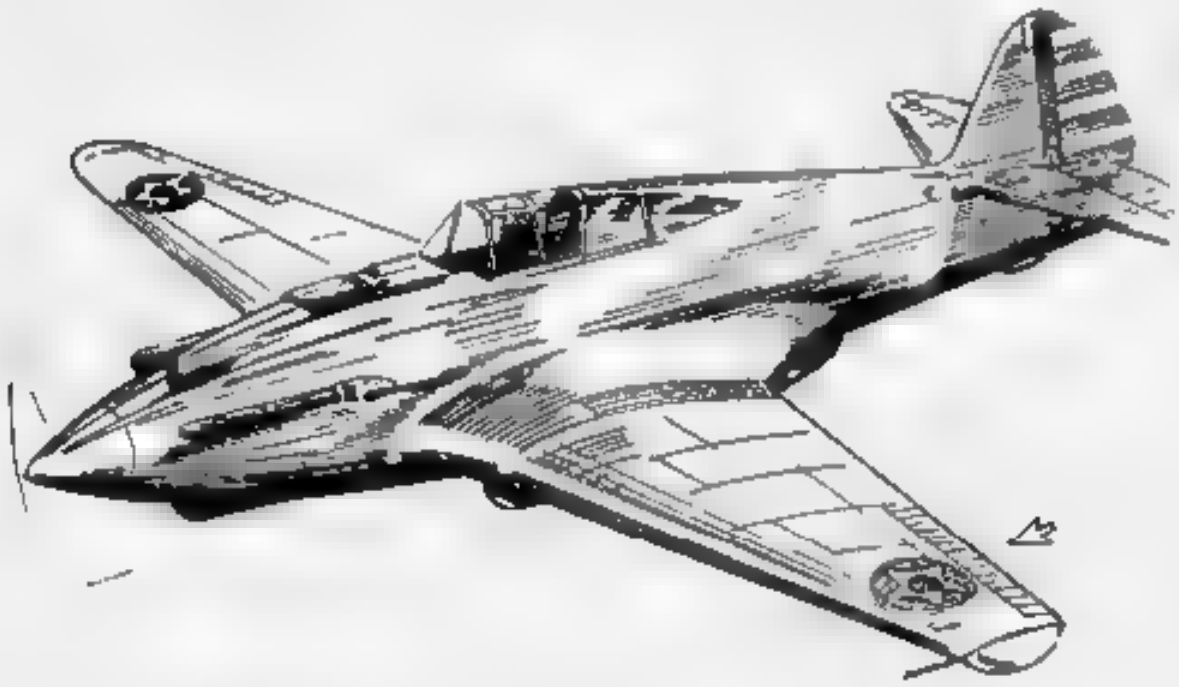
Although the 'plane is "low-mid-winged" in respect to the centre fuselage or nacelle, the centre of drag will probably be just above the thrust line if a detachable or retractable undercarriage is used, whilst it will be slightly below or in line if a fixed chassis is used, according to the drag of this unit.

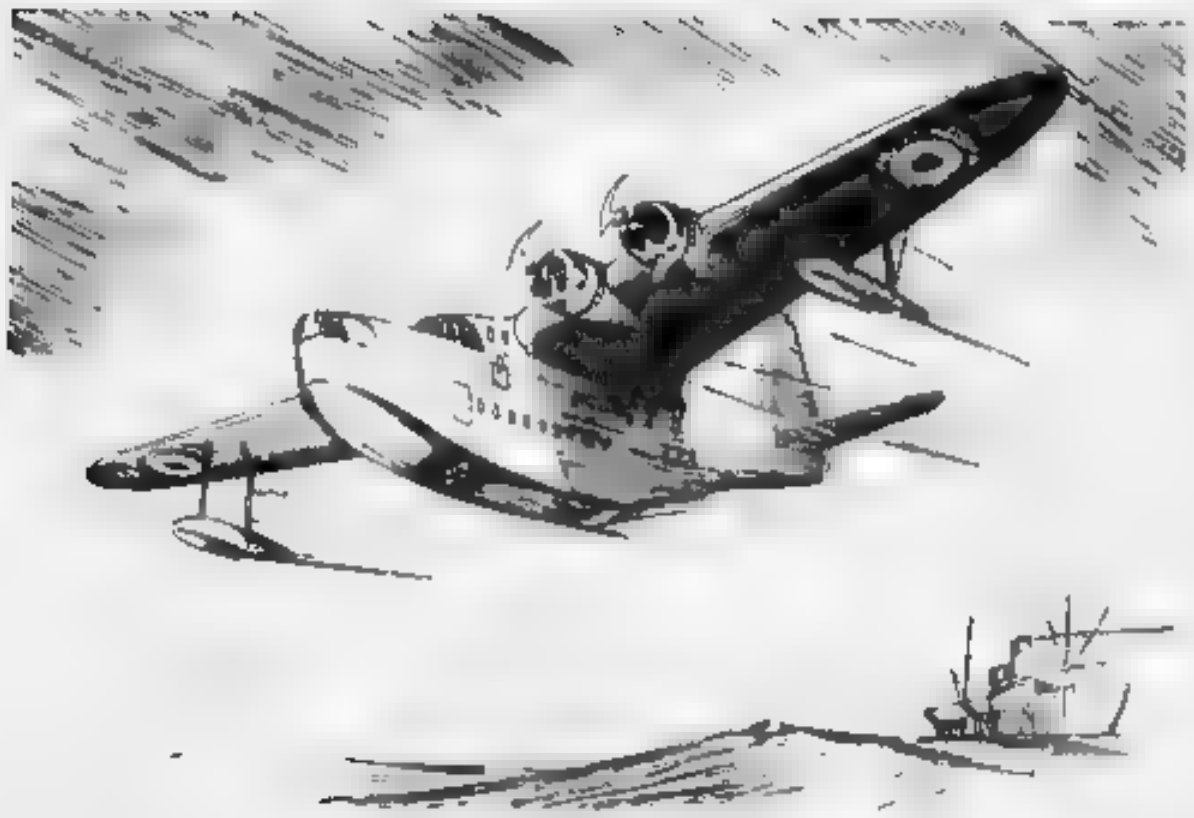
An increase in vertical tail area should not be necessary, as the fins are fairly far apart, and the blanketing effect of twin rudders will in consequence be slight.

Finally, the design is clean, there being very few projections or fittings to spoil the streamlining and add weight. Therefore, it should be possible to produce a light, powerful model, capable of long durations.

One of the most radical fighters of recent years is the Fokker D.23.

Among its unusual features are the tricycle landing gear, the disposition of the engines, the armour plating around the cockpit, and the inclusion of the new Browning Shell gun in its armament. Like the Lockheed VP.38 it has two booms





It lets us shown the Short "Sunderland" and below the Junkers J.U. 87

to support the tail unit, but instead of containing a motor in the nose of each of these, the D.23 has a new type of machine gun. This is the 13.2 mm. American Browning, which fires explosive shells at the rate of one thousand rounds per minute. Two more Brownings, in this case 7.9 mm. machine guns, capable of firing ordinary bullets at a combined rate of 2,600 rounds per minute, are contained in the fuselage.

The power consists of two Walter-Sagitta twelve cylinder inverted Vee type motors, arranged in tandem with the pilot placed between. Thus with the sheets of armour-plating which are installed at the front, rear and sides of the cockpit, the armoured seat, and the engines, the pilot is well protected from enemy bullets.

The motors, driving three-bladed variable pitch feathering airscrews, are rated at 520 h.p. each, and with these engines a speed of nearly 330 m.p.h. is claimed. Fitted with Rolls-Royce "Merlins" the maximum speed could be increased by about 50-60 m.p.h.

At the end of the metal booms and beneath the tail fins are situated metal skids, fitted, no doubt, for use in the event of a landing with the undercarriage up, or in case the pilot should land tail low. The main wheels retract inwards into the centre section and fuselage, flaps being provided to close the wells.

The tail area is small, when compared with more orthodox fighters. This may be accounted for by the distribution of weight over the machine. The engines bring the centre of gravity close to the wing's centre of pressure, thus the tail moment can be shorter or the horizontal stabiliser's area reduced.

It is difficult to decide whether this design would make a successful flying model. Few models have been built which have any resemblance to this machine, and so there is very

...ttempt to work on. The first point to consider is the centre of gravity position, and across the tail booms, and rear of the fuselage were kept exceptionally light, this would be too far back. This involves structural difficulties, a great difference in strength and weight is undesirable. Probably the best way of overcoming the C.G. difficulty would be to use a slightly lifting type tail, a Clark YH or N.A.C.A. M.6 should do the trick. The C.G. position could then be behind the centre of pressure. Rudder area would then most likely have to be increased to preserve directional stability.

In order to obtain lateral stability, a substantial increase in dihedral angle would be necessary, but this would also help to counteract the longitudinal instability set up by the high thrust line.

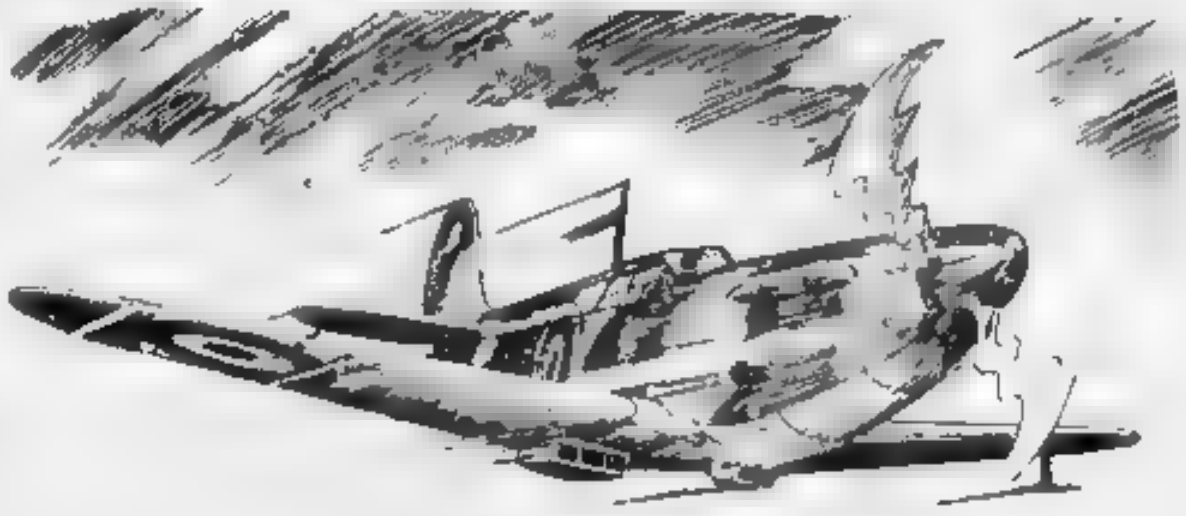
Once these balancing up problems were solved, the rest would be easy. Much more rubber than can be used on an orthodox flying-scale model could be installed, since by using counter-rotating props., torque and all its bad effects would be abolished. This should give a fast climb, enabling the model to reach a reasonable altitude, which would make up for the brief motor run necessitated by the short fuselage.

Whilst the duration performance of a model of the D.23 would be somewhat limited, such a model would be an interesting experiment.

Possibly a speed scale-model enthusiast would find inspiration in this design.

Fastest single-seat fighter in the R.A.F. is the Vickers Supermarine "Spitfire." This machine represents the result of the experience gained by Supermarine engineers in building the successful Schneider Trophy entries. Its design features the use of elliptical taper wings, a shape

At right is shown the Supermarine "Spitfire," and below the Handley Page "Hampden."

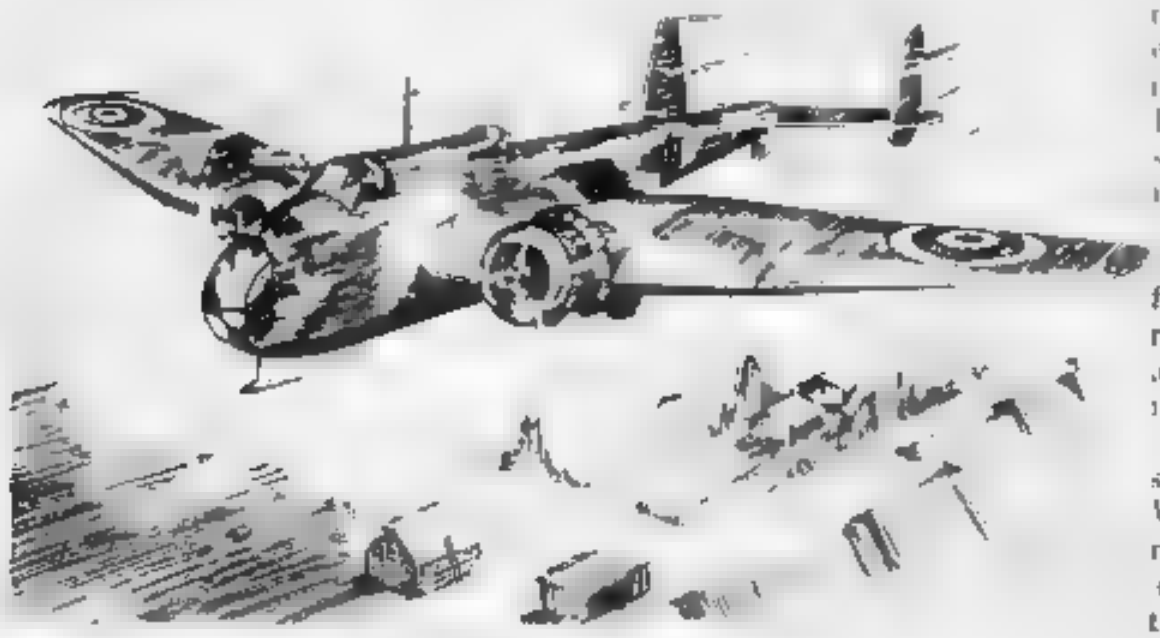


with which modern buccaneers are familiar, which is considered to be more efficient than the present-day taper type. The machine has an alloy covering over its metal fuselage framework, whilst the wings are full-cantilever structures also having a metal skin. Each wing panel contains four Browning machine guns and also provides accommodation for each undercart unit, these retracting outward.

The power unit of the "Spitfire" is a Rolls-Royce "Merlin" of 1,050 h.p., supercharged, of course. Aft of the motor and a fireproof bulkhead are situated two fuel tanks. Maximum speed is 362 m.p.h., although later models, fitted with three-blaced variable pitch airscrews in place of the fixed-pitch two-bladed prop., are credited with a speed of 367 m.p.h.

No doubt some readers have already constructed models of the "Spitfire," there being many kits of both flying scale and solid types on the market. This issue of THE AERO-MODELLER also contains plans for building an excellent model of the "Spitfire" so there is no need for me to comment further on its design.

One of the most recent additions in bombing craft to the R.A.F. is the Handley Page "Hampden," a medium weight bomber of



somewhat unorthodox design. Its owes its distinctive appearance mostly to the fuselage shape, which is deep and narrow forward of the wing trailing edge, the tail being supported by a slender boom which constitutes the rear part of the fuselage. This arrangement aids the two rear gunners considerably in their arcs of fire.

The structure of the "Hampden" is all metal, the wings being full cantilever and employing Handley-Page slots and flaps. The landing gear retracts into the engine nacelles, which house Bristol "Pegasus" air-cooled radials, these driving de Havilland triple-blade props.

Performance of the Hampden is good, high speed being given as 265 m.p.h., with a maximum weight of 21,000 lb. and a range of just under 2,000 miles. The machine has a wing span of 69 ft. 4 in., and a length of 53 ft. 5 in.

The design of the "Hampden" is not, of course, ideal for flying model reproduction, and few modellers would be interested in its possibilities as such. As a solid-scale type, however, it certainly should be added to the

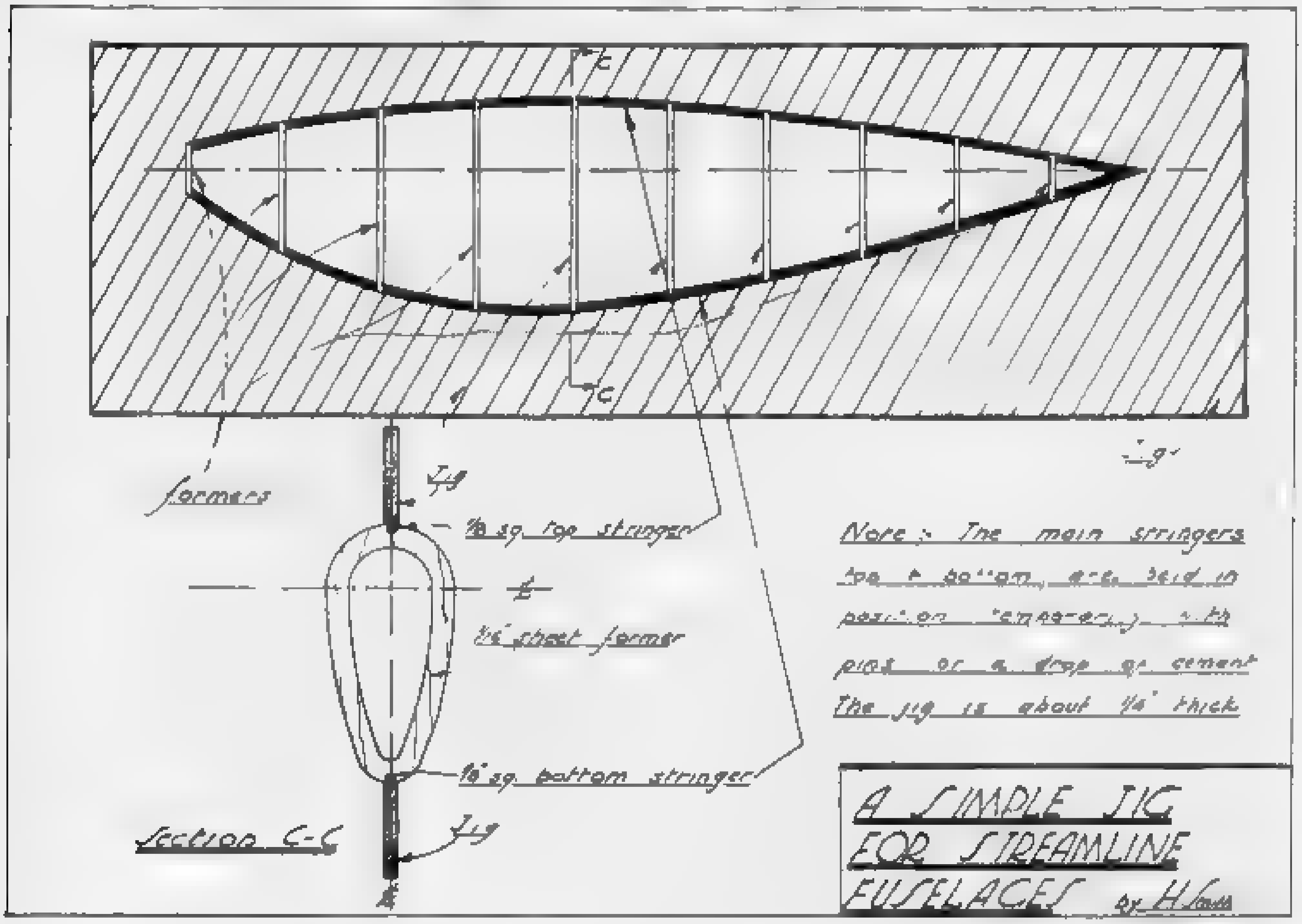
collection of those interested in modern military machines.

Germany has developed, perhaps more than any other country, that type of aircraft known as the dive-bomber, and an example in this class is the all metal Junkers Ju.87. Although easily distinguishable from other craft, this machine should not be confused with the Blohm and Voss Hamburg Ha.137, a single seater fighting and bombing 'plane of almost similar external form.

The Ju.87 is powered by a Junkers Jumo" motor, and its wings have special flaps fitted which are employed, it is said, to reduce diving speed in order to permit greater accuracy when bombing, although rumour has it that these flaps had to be fitted in order to decrease speed just before the pull-out, presumably to prevent the wings from falling off. Whether any credence may be placed in this report is, of course, doubtful, but doubtful also are the startling performances claimed by the Nazis for many of their Air Force machines, and so one cannot dismiss such rumours as decidedly untrue. However, to get back to facts, the Ju.87 is fitted with two fixed machine guns in the wings and one flexible gun for the observer. Speed is claimed as 240 m.p.h. No other details have been released at the time of writing. The design is of robust proportions, and should make a successful flying model as well as an attractive "scale."

The largest plane in production for the R.A.F. is the Short "Sunderland" flying-boat. A militarised version of the "Empire" class ship, it is powered with four Bristol "Pegasus" engines, each delivering 840 h.p. and having a take-off rating of 1,010 h.p. The "Sunderland" differs mostly from the "Empire" boats in its shorter length and greater depth of hull, and in its slightly shorter wing span. It is also a shade faster, maximum speed being 210 m.p.h., whilst normal range is 1,670 miles. Other figures relating to the Short "Sunderland" are as follows: Span, 112 ft. 9½ in.; length, 85 ft. 4 in., initial rate of climb, 1,200 f.p.m.; service ceiling, 20,500 ft.; gross weight, 22 tons.

A SIMPLE JIG FOR STREAMLINE FUSELAGES



By H. SMITH

THE outline of the fuselage is [illegible] traced from the plan on to a sheet of [illegible] plywood or balsa, about one quarter of an inch thick. Then the centre portion is cut out with a fretsaw, leaving the outer portion, which is the jig. This is shown in shaded lines on the drawing. Next place the top and bottom main stringers inside the jig and [illegible] the cement [illegible] pins [illegible] position. The formers are then placed in position along the jig, and cemented to the top and bottom stringers. Be sure that all the formers are square to the jig [illegible]

[illegible] The stringers or planks can now be cemented in position. If any pins are used these must be removed before the fuselage is finally planked. [illegible] instructions carefully [illegible] fuselage [illegible] now be complete [illegible] for the removal of the [illegible] holding the top and bottom main stringers to the jig. These can be separated from the jig with a razor [illegible] thus allowing the completed fuselage to be removed from the jig.

This type of jig can be used any number of times to make the same fuselage. [illegible] I suggest that clubs [illegible] make several jigs of well known models for the use of their members.

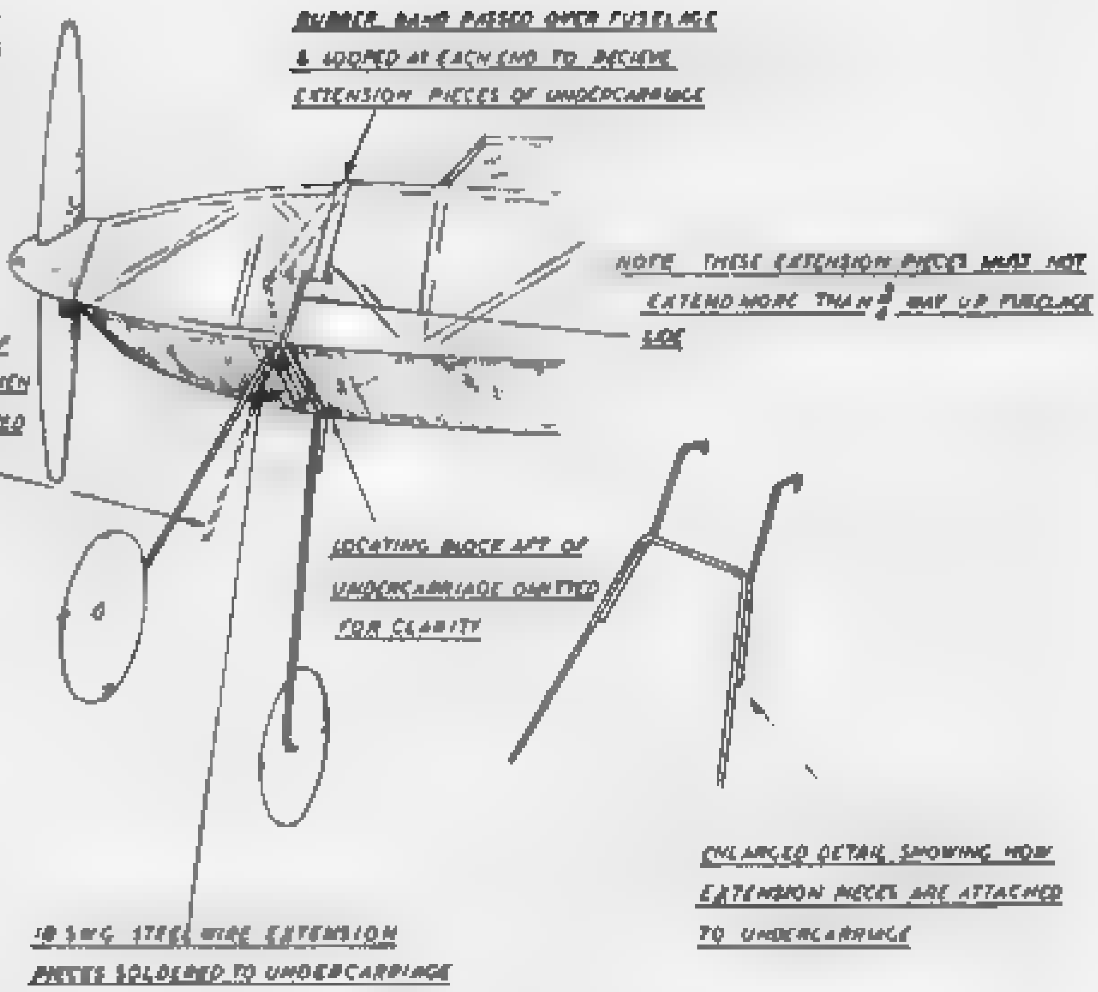
A SIMPLE UNDERCARRIAGE By R. F. CORBETT

ALTHOUGH it is not always possible to combine simplicity with utility, the shock absorbing undercarriage shown here is an example of the way in which exacting requirements can be met by quite a simple device.

In the case in question a rubber band is applied to the two-fold purpose of securing an undercarriage in position and acting also as a shock absorber. The arrangement involves the attachment of two extension pieces to the top of each leg of the undercarriage, the top end of each extension piece being bent to form a hook. The rubber band is passed over the top of the fuselage and is made to pick up with the hooked portion of the extension

pieces. It is essential that the rubber band should be sufficiently taut so as to permit of its holding the undercarriage firmly to the model when in flight.

Locating the undercarriage, so as to prevent it moving along the underside of the fuselage, are two small blocks of wood, preferably hard wood, extending across the width of the fuselage, one block being placed in front and the other behind the undercarriage.



A SIMPLE RUBBER TENSIONER

By S. E. CAPPS

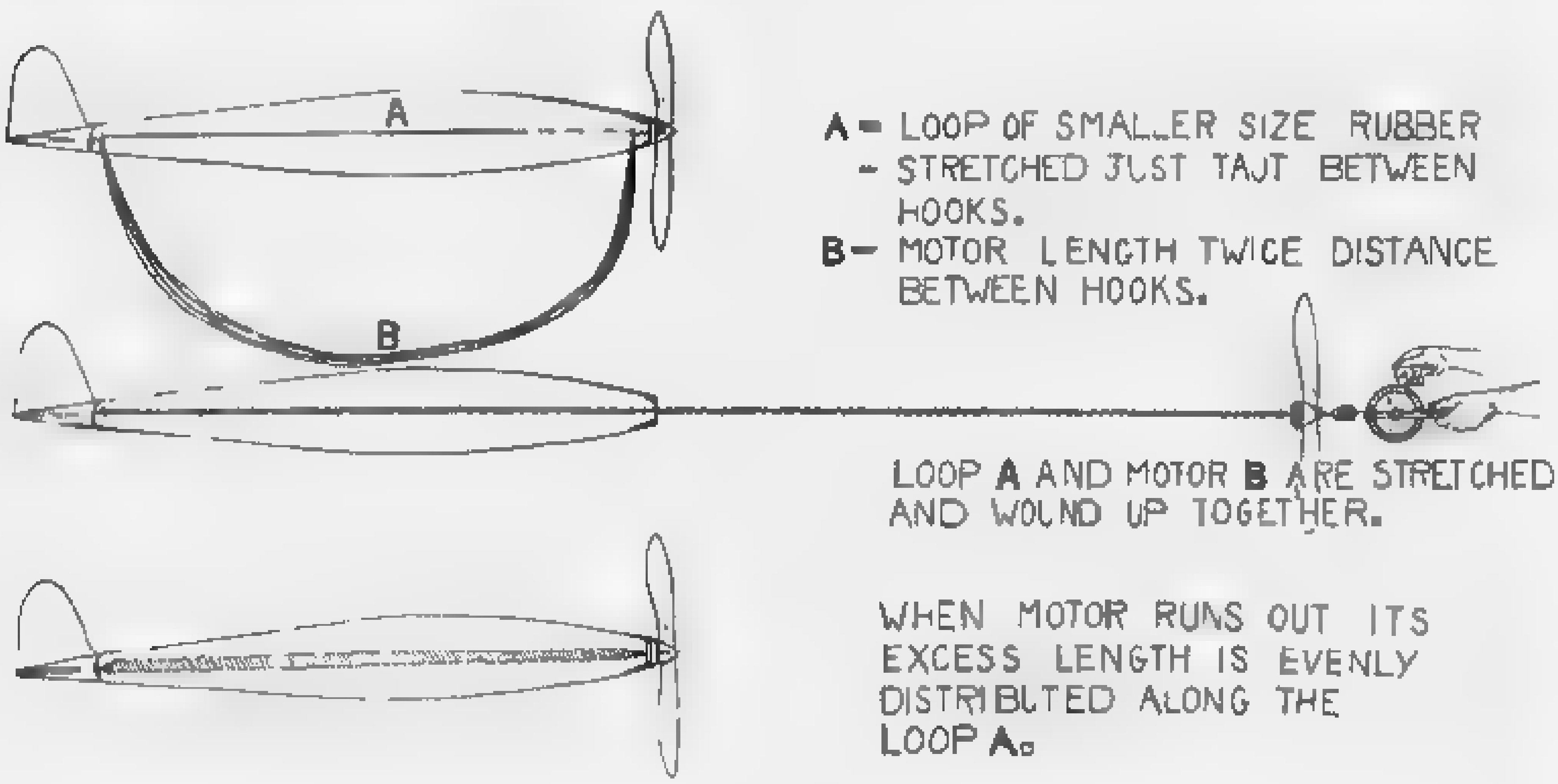
THIS simple tensioner for a model aeroplane motor was devised on the flying field in an attempt to stop a model fitted with a very long rubber skein from crashing every time it landed.

As will be seen, it is not in any way complicated, and can be used on any type of model irrespective of size, scale models included. In fact, it should appeal to the small scale modeller, as it will help him to increase the duration of his models by using a much longer motor and tensioning it this way.

The sketches are self-explanatory, and they show a small loop of smaller size rubber stretched taut between the driving hook and the fixing at the rear.

The motor proper and the loop are next stretched and wound up together, and when the motor runs out it will be found that the long motor skein has been evenly coiled along the taut loop.

This maintains the balance of the model while flying, which is definitely not so with a long motor sliding its weight up and down the fuselage.



HINTS FOR SOLID MODELLERS By J. SYMONDS

NOW that the long winter evenings are upon us, and with the "black out" as an extra incentive to stop indoors, many model builders will, for the time being, have downed tools on flying scale and duration models, and commenced the fascinating hobby of building solids.

The first one shows a simple method of making a circular cowling without the help of a lathe. A round rod is procured of the required inside diameter of the cowl to be made. The end of the rod which will be used as a former, should be well greased with wax. Plastic wood is next applied as shown, to a depth of about 8-64 inch. When hard and thoroughly dry, the plastic wood should be sanded down to approximately $\frac{1}{32}$ inch thick, after which it is removed from the former, painted if desired, and cemented to the model.

The carving of cockpits on solid models is also quite a problem when the builder is not lucky enough to possess a gouge or drill. A simple way of getting over this difficulty is shown in Fig. 2. The fuselage is made in two halves, and the cockpits are hollowed out before cementing these together.

A neat way of marking the control surfaces on wings and tail is shown in Fig. 3. A line of indian ink is drawn to the rough outline of the aileron, and when dry is scratched to a very fine line with a sharp knife or razor blade. A thin coat of dope will "fix" the ink well.

Propellers with pins sticking out of the spinner do not look realistic, and Fig. 4 shows how the pin can be cleverly hidden whilst still allowing the propeller to revolve quite freely.

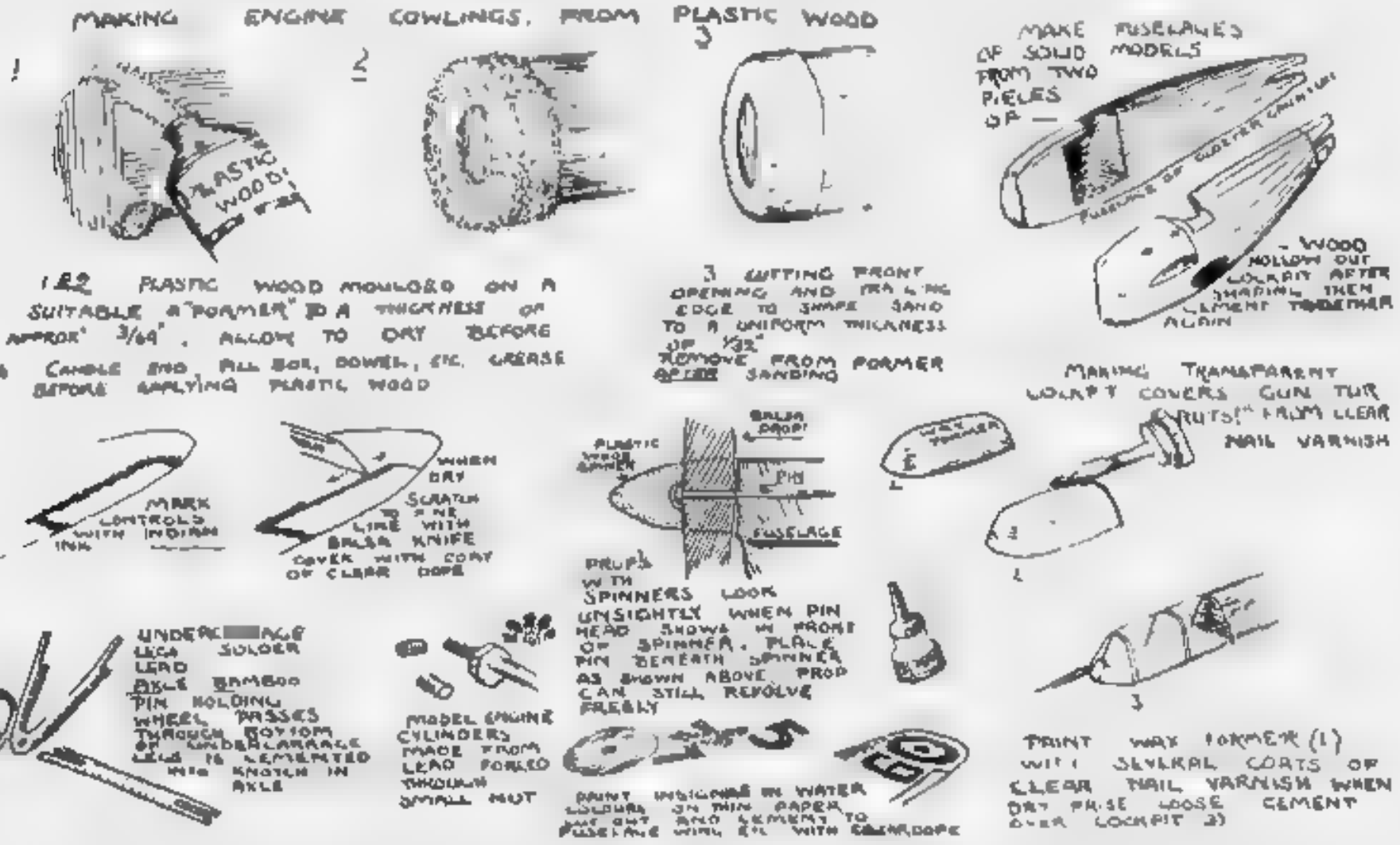
How to avoid split axles when fixing wheels on solid models, is shown in Fig. 5. The pin holding the wheel passes through the undercarriage leg and into a notch in the axle, where it is firmly cemented in place.

To make small dummy cylinders for radial-engined solids, first obtain a small nut with an inside diameter of that required for the cylinders. (A Meccano nut would serve). A rod of lead is next obtained or made so that it is a tight fit in the nut. By holding the nut firmly with a pair of pliers, you should be able to twist the lead through, and a grooved rod will be passed out of the other side. When sufficient grooved rod has been made, cut off the number of cylinders required and paint black.

Insignias painted directly on to models look very well if you are an expert painter, but many modellers are not, and there is an easy way out of their difficulty. Draw the required insignias on white paper, and colour with water colours or coloured dope. You need not stick to the lines when painting, just paint all over the paper used, and when dry neatly cut out the insignias, leaving the surplus painted paper behind. Make sure when applying the colour that you can still see the original pencil lines, or you will not know where to cut with the scissors. The finished insignias can be stuck in the correct place with gamma oil or paste. You will be surprised how effective they look with their clean cut lines, better than any painting job.

The last hint is, perhaps, the most useful of all in these days of covered in cockpits. Making transparent cockpit covers and gun cupolas is no easy matter, but this way supplies a cure.

First make an accurate former of the cover or cupola required. This can be made up of balsa or wax (candle grease). If balsa is used, the former must be sanded very smooth and waxed. A small bottle of *clear* nail varnish is next obtained, and the former is painted with several coats of this, allowing each successive coat to dry before applying the next. When completely dry the nail varnish covering may be prised off the former and cemented in position on the model.



PETROL FLYING BOATS

By

MAJOR C. E. BOWDEN

PETROL model aeroplanes for land work have now arrived at an advanced stage of design and construction, but petrol flying boats and seaplanes, in England at any rate, have not been much attempted or developed, and yet we are an island race and have considerable access to the sea and lakes.

I suppose this is partly due to the fact that the great majority of petrol builders are still busy either on their first models, or the difficulties of water operation discourages them.

Actually neither of these points should be allowed to interfere with the fun and thrill that can be obtained from petrol watercraft as a side line to the more normal land models.

In these notes, firstly, I hope to encourage watercraft building by describing some of my simple experiments, and secondly, to help by conclusions I have come to and observations that occur to me.

Throughout my model aeroplane making life I have always had two side lines that have run sometimes hot and sometimes cold, but which nevertheless have been carried on with few breaks.

These have been model racing hydroplane construction and the making of model seaplanes and flying boats. Perhaps this has been partly due to my love for full-sized power boats and the sailing of racing craft. As a result slowly over the years (that sounds bad!) I have accumulated data that may help anyone setting out with a new born desire to build and fly model seaplanes. Also my temporary and recent sojourn at Gibraltar has naturally made me do more seaplane work than landplane. Years ago I used to enter the old S.M.A.E. seaplane competitions at Danston Park each year, and I think I was one of the very few people who got a win float seaplane to take off the water and come in for a place in one of the Lady Shelley Cup competitions. That event proved a contention of mine that is a very important though very simple one and has a lot to do with the take off of model seaplanes, and incidentally the stability of model hydroplanes.

The step must be *well in front* of the C.G. of a model. In full-sized work where there is a pilot to make necessary corrections with controls it is normal to place the step on or about the centre of gravity. But we will pursue this matter later.

It must be admitted that the water makes the launching of a model difficult. If the model is not stable either on the water or in the air, and turns over on the take-off or when landing, or even more likely gets blown over after landing, it becomes soaked with water. This will enter the inevitable small holes in the fabric and also gain access to the cylinder of the engine.

During the drying process the wings and tail unit are likely to warp unless very carefully weighted down to flat boards whilst drying.

It is, therefore, essential that we design our models so that we eliminate the above troubles as far as humanly possible to do.

A boat either hired or made is almost a necessity because the model must be retrieved, and obviously it must fly in circles down wind from the shore if off water flight and landing on water is to be made.

A good stable boat that is not easily upset is required. And these difficulties, however, make the affair even more of an adventure and, when success is obtained, provide added satisfaction.

Dead calm water with an oily look to its surface is not good for either models or full-sized craft to take off from. A slight ripple on the surface of the water is advantageous, and helps the aircraft to rise on its steps.

It is well to remember to go flying with an extra supply of batteries for lighting in case they become damp through sea spray, and also extra long leads to one's starting accumulator are desirable, for the accumulator will have to be in the boat, because usually the model floats on the water whilst the propeller is swung.

It is usually difficult to start a petrol model in a boat owing to its size.

Time switches are a nuisance, as their delicate mechanism is invariably cease to work if they get an unexpected drenching during the first test flights whilst the owner is searching for correct adjustments. It is therefore better to control length of flight by using small petrol tanks that will give about one minute engine run only. This allows about 20 seconds for start and warm up before release.

It is never advisable to fly a model off crowded waters

AND SEAPLANES

On left (Fig. 1) is shown Major Bowden's 6 cc. "Baby Cyclone" engined flying boat. On right (Fig. 2) is his 7 ft. span seaplane, powered with a 9 cc. Brown engine. Below is another small flying boat powered with an Ohlsson "23" engine. (Note the N.A.A. transfer on the left fin. Major Bowden is, of course, Hon. President of the Guild

Usually it is easier to find a large open space at sea or an unfrequented lake than it is to find similar conditions on our highly populated countryside.

If one operates off sea water it is well to choose a engine that has no electron alloy in its make-up, as sea water has a terrible effect upon this very light metal should the engine get a ducking.

One of the prettiest and most satisfactory model sights I know of is the rising on to the steps or a power take off amidst the spray from the hull, and then the final unstocking of the hull, with water dripping from the bottom. There are certain special attributes that are peculiar and necessary to successful rise-off water models.

These may be summarised as follow:

1. Stability on the water.
2. The ability to take on the water *easily*.
3. Stability of the model in flight.
4. The correct angles of incidence of wing and steps in relation to each other.
5. Design to ensure good landings.
6. Good detail design.

Now let us examine the above points in detail.

Stability on the Water

Most models of seaplanes, both rubber and petrol, that we see have obviously only been designed with regard to getting off the water.

The designer has not really worried himself as to whether the model is seaworthy and can be left on the water in a fair wind and yet refuse to blow over. Nor has he got as far as knowing about the same feature after the craft has risen.

The first thought has obviously been how to get the model to take off.

I maintain that this is attacking the problem from the wrong end.

First think of whether your model will be stable on the water. It is not worth having a model that can only just remain upright on the water in a dead calm.

I always quarrel with the existing (rubber-driven) seaplane competitions and their so-called flotation tests. These are of very short duration and do not really tell one if the model's flotation gear is seaworthy and waterproof after a long immersion and in a good breeze.

I consider the model should be moored in a wind, if available, without any outside steadying assistance, for at least a quarter of an hour.

The model should then be allowed to float *free* for at least half a minute to test its ability to get into wind, etc., without blowing over. A canvas tank take-off is really not seaplaning at all. It is an amusing stunt at a model flying meeting that all helps the meeting to go with a swing, but it does not produce seaworthy model aircraft, and it permits models to be built with undersized and very light floats that only have to be used as momentary water skis.

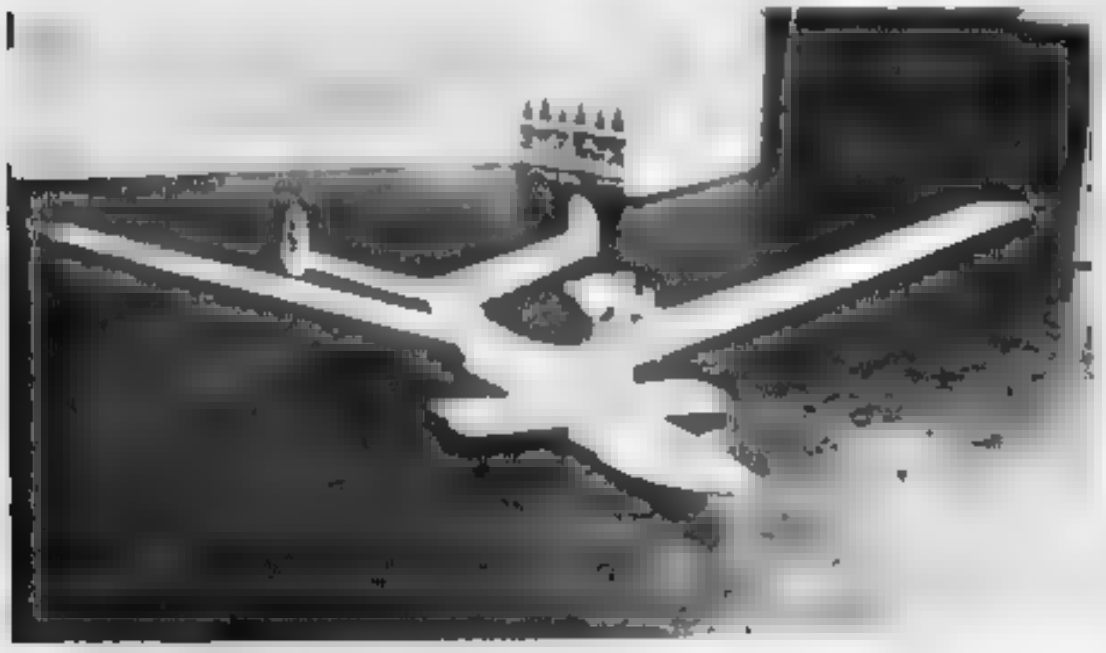
My fingers are crossed, so it is useless for outraged tank enthusiasts to shoot rude retorts. There is about 1,000 miles of sea between them and Gibraltar anyhow!

One of the most important features of a seaplane is its landing *the correct way up on water and its ability to remain in that position on the water until its owner retrieves it.*

I feel that until these points are obtained one has not designed a useful seaplane or flying boat.

I think that the major seaplane competitions should be held on a lake, sea or reservoir, and only those keen enough to go to the trouble should be permitted to win the honour of the major cups for this branch of model flight and research.

I hope one day that a national cup will be given for petrol seaplanes and flying boats to encourage enthusiasts to seriously experiment in this line, and to produce reliable and



seaworthy models. The results should be most interesting. Let us assume then that we require a real flying model boat that will operate from and alight on water.

We must have a good large flotation base on the water in relation to the size of the model, and yet this base obviously cannot be too large or the model will weigh too much, and have too great a head resistance in the air.

We can place our main floats wide apart to get lateral stability, and if we want real water longitudinal stability we shall get it best by using a third tail float.

This obviously gets the longest base possible, although it does not look so well.

If tail floats are sufficiently long they can be used of course, but they cause greater water skin friction for the take-off.

In the case of the flying boat we must have as long a hull in front of the mainplane as possible, and carry it further back than in the full size machine.

I have a friend who has been fired by my water model efforts, and who built a petrol flying boat, and brought it out to Gibraltar with him on his boat. By this year it a mystery as coffin like box that intrigued his fellow passengers, who could not discover what it was he was so solicitous about in his "cabin trunk".

This flying boat flies very well, but [illegible] from one serious disadvantage [illegible] sized scale length of waterline. It looks delightful, of course, but it constantly puts its tail into the water as it would in air, owing to the wind driving down the necessary large model type tail. There is not sufficient buoyancy aft to counteract this. The result is that the tailplane becomes water-logged and the model naturally flies tail heavy when this happens.

Fig. 1 shows this boat flying very nicely overhead, and the reader will doubtless agree that it looks very well in the air, but it will have to be altered if it is to be longitudinally stable on the water and wait for master correction.

Both my friend and I are agreed that wing tip floats are not good for a model flying boat, as the boat tends to rest on one wing tip float, and at the start of the take-off run that float generally causes water drag fairly on the [illegible] one side and swings the model out of wind, and the take-off is often ruined.

[illegible] Spot rudders appear to be the best answer for model flying boats. They can be easily [illegible]

Now [illegible] my latest power "Cyclone" engined flying boat shown on the water in Fig. 2.

Practically every time I put a model car or reasonably expected to fly in will blow over this model does not blow over on to a wing-tip float on to its tail.

It does not look so pretty, but its design has been entirely dictated by practical requirements, and the result of latter experience and discarded better looking efforts.

You will observe its depth of hull to the step that makes contact with the water.

[illegible] its tail are blown out. [illegible] spansons may also be [illegible] covered with 0.8 mm. [illegible] balsa form water tight [illegible] assist take-off as a [illegible] also to act as small airplanes when [illegible]

When [illegible] the model will probably notice that this model has a swept back wing plan and a tapered wing plan. This means that the sponsons have less surface to [illegible] and so are not [illegible] by a gust.

It is therefore very difficult [illegible] wing tip blown into the water.

To make up for this lack of [illegible] is large at the root and the section is thick and of a very high lift type.

The wing loading is actually [illegible] so that on the water and when taking off it is slightly

At top left, in Fig. 4, is shown the "Cyclone" engined flying boat flying past the Rock of Gibraltar; and at right Fig. 6) is the same boat just taking off. At side is shown, in Fig. 9 or, Brown engined boat belonging to a friend of Major Hawden

[illegible] right at speed, and the model takes off where a less stable model on the water will often drop a wing into the water during an attempted take-off and so never actually get off.

The fin is large and a long way from the mainplane so that the model at once blows into wind when [illegible] on the water.

This obviously helps the model from being blown over as it is seldom caught sideways on to the wind, and it also obviously helps directional stability into wind

during the take-off. In order to prevent spiral instability when flying, a good large dihedral is given to balance the large fin area.

I have since built a larger boat with these same features, but with the hull blended to the raised tailplane.

Fig. 6 shows the little 6 oz. model just taking off the water. It is possible in this photograph to observe the water at the trailing edge of the port sponson and the knife edge of the rear step almost clear of the surface. The boat has no rudder "outstrick," and one can see that the engine torque in spite of several degrees offset of thrust, is keeping the port sponson down, whilst the starboard sponson must be clear. If an outboard float was fitted instead of the sponson one can visualise how the port wing would skew round. The sponson instead helps to lift the hull on to the surface of the water.

Fig. 4 shows the model circling round in the harbour with Gibraltar in the background. I was fortunate enough to obtain a complete sequence of photographs with the aid of the rapid winding gear of my Leica camera. These snaps showed the take-off, the climb just off the water, several shots in the air, and finally the glide just before the model touched down.

If space allowed I would very much like to have published this rather unique set of photographs, as I feel they are quite interesting.

The wing span of this little model is only 4 ft. 9 in. and the root chord is 12½ in., tapering to 8½ in. at the wing tips.

For the benefit of those readers of Fig. 2 it may be of interest as it brings out certain points that have been discussed.

At first sight the floats look very small for the model, but this model will take off the water after a run of between 9 to 12 yards in a light breeze and with a slight popple on the water. The model then flies very well, and is very stable in the air. Her water stability, as may be imagined, is really first-class, and she is almost impossible to blow over in any normal flying weather. Her landing ability is a delight to watch owing to the large area floats. The model has no tendency to dig in from the glide, and she immediately skims over the surface after touching down, and settles like a large sea sled.

The floats have a forward step just clear of the water when planing on the central step, which is situated just ahead of the C.G. of the model. Then there is the normal tail step some way behind the C.G. In addition there is a largish tail float that stands absolutely no argument with any playful winds that attempt to push the tailplane into the water. This tail float rises from the water almost as soon as the slip stream from the airscrew hits it, and can be seen in Fig. 2.

The wing span is 7 ft. with a constant chord of 12 in., and the engine is a Mills "Brown." The total weight is just over 7 lb.

Incidentally, large floats do not make a model unstable in the air, provided they are balanced by a good dihedral and fin above the C.G.

I am going to risk the Editor's displeasure at once by asking for long legs and put in one more photograph, Fig. 8, as I feel it will be of interest because it is of a very light model with a balsa-planked hull and engined by one of the powerful baby Ohlsson "23's." The N.G.A. transfer may be seen on one of the model's twin fins. This little boat flies on the principle of the powered glider, which is my method of dealing with the very small engines, as I explained in a recent article on models for midget engines that appeared in THE AERO-MODELLER.

The Ability to Plane on the Water Easily

In order to get the model off the water, it must quickly get up to its planing surfaces on the limited engine power available.

The angles of the steps must not be too coarse or they will create too much drag. Neither must the model be sunk deep in the water on heavily ballasted floats. The loading on the planing surfaces must be light, i.e. a large area must be used, and the steps must have a very smooth and polished finish. It will be observed that I use the plural, steps.

However, it is quite possible to use a single main step and a tail step, provided the main step is well forward of the C.G.

But one must remember that on a model with a single engine the thrust line must be high, so that the propeller clears the hull, and model propellers are of a greater diameter in comparison to full-sized airscrews.

This high thrust line tends to pull the nose into the water if the centre of water resistance is far back, as it must be, if the step is below the C.G., as in the case of full-sized aircraft.

There are two methods which will overcome this greatest of all difficulties, *and until these methods are grasped it is most unlikely that success will be obtained.*

The first method is to place the main step well forward of the C.G., as already suggested, and the second and better method for model work is to use a central step with another step well forward of the central step.

Thus when the nose tends to dig in, due to the high thrust line of the engine, the forward step immediately counteracts the tendency.

It is extraordinarily simple, but very few people seem

NOTES ON CONSTRUCTION

By "INSTRUCTOR"

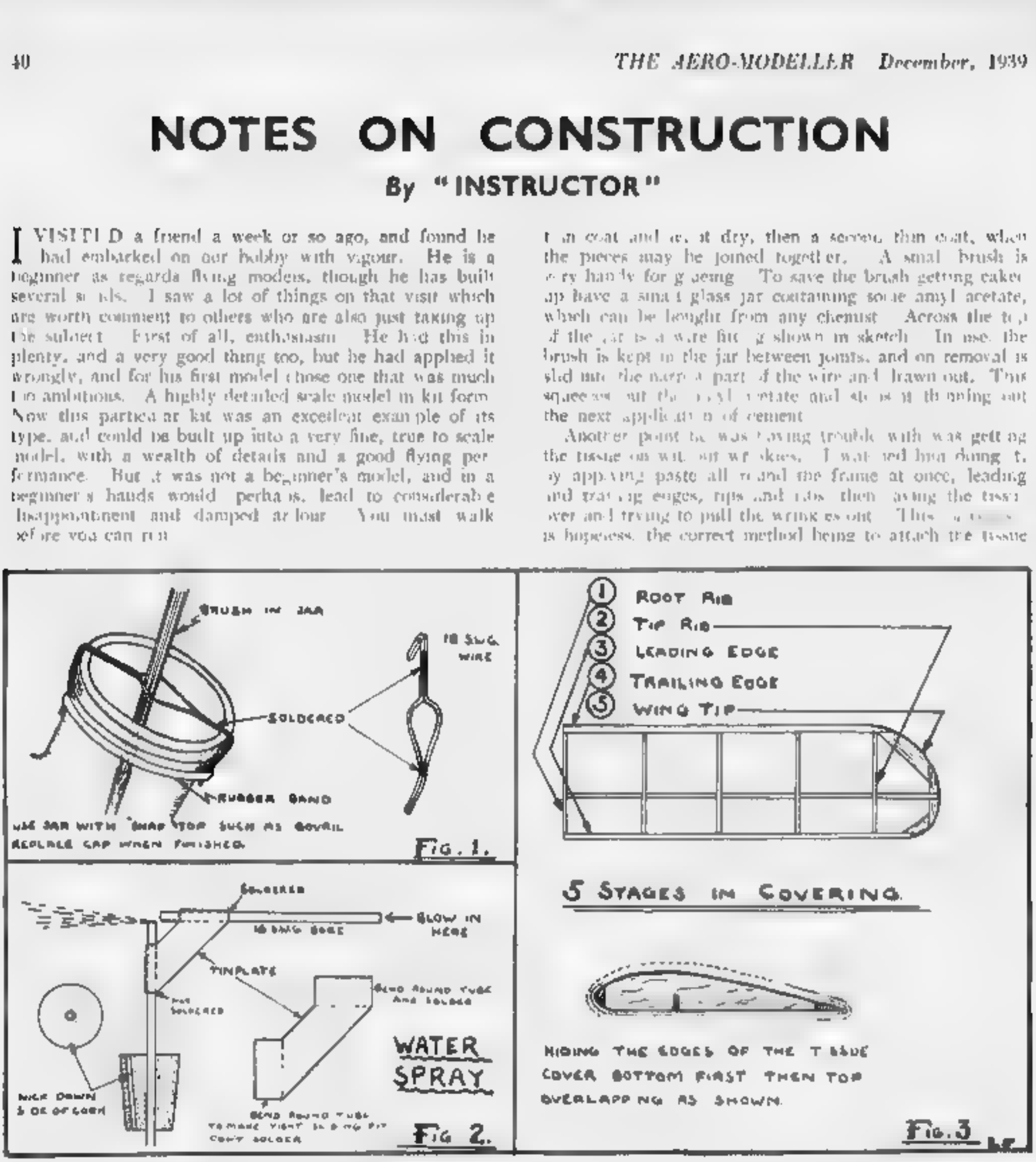
I VISITED a friend a week or so ago, and found he had embarked on our hobby with vigour. He is a beginner as regards flying models, though he has built several solids. I saw a lot of things on that visit which are worth comment to others who are also just taking up the subject. First of all, enthusiasm. He had this in plenty, and a very good thing too, but he had applied it wrongly, and for his first model chose one that was much too ambitious. A highly detailed scale model in kit form. Now this particular kit was an excellent example of its type, and could be built up into a very fine, true to scale model, with a wealth of details and a good flying performance. But it was not a beginner's model, and in a beginner's hands would, perhaps, lead to considerable disappointment and damped ardour. You must walk before you can run.

Secondly, he had built the fuselage and assembled wings and empenage to it before covering the parts. This may be all right on a heavy, robust job, but on such a light model must lead to warping when the surfaces are covered with tissue and sprayed with water. This had, in fact, happened, so I persuaded him to strip the covering off and to start again.

This brought to light his third mistake. He had used far too much cement on the joints. Huge blobs of it, in fact, applied straight from the tube. Now cement when applied like this dries in the form of a thin shell on the outside, but inside is just a bubble of air, consequently the joint is very weak. The correct way is to apply a thin coat and let it dry, then a second thin coat, when the pieces may be joined together. A small brush is very handy for gluing. To save the brush getting caked up have a small glass jar containing some amyl acetate, which can be bought from any chemist. Across the top of the jar is a wire fitting shown in sketch. In use, the brush is kept in the jar between joints, and on removal is slid into the narrow part of the wire and drawn out. This squeezes out the amyl acetate and stops it thinning out the next application of cement.

Another point he was having trouble with was getting the tissue on without wrinkles. I watched him doing it, by applying paste all round the frame at once, leading and trailing edges, ribs and tips, then laying the tissue over and trying to pull the wrinkles out. This is hopeless, the correct method being to attach the tissue to the root rib, then draw it tight spanwise, and attach to the outermost rib. Then, when dry, attach to leading and trailing edges, avoiding pulling it too tight and causing sagging between the ribs. Finally, the wing tips. This can generally be done with one piece of tissue for each surface to be covered, but a separate piece may be used for the tip, if preferred.

While on the job, we made up a water spray as shown in the sketch. It is simply two pieces of ⅛ in. bore brass tubing joined together with a piece of tin. In use the long end is inserted in a medicine bottle of water, and you blow into the other end. It gives a fine spray and only takes a few minutes to make.



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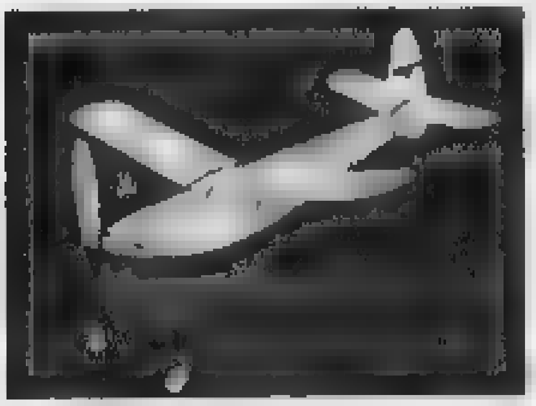

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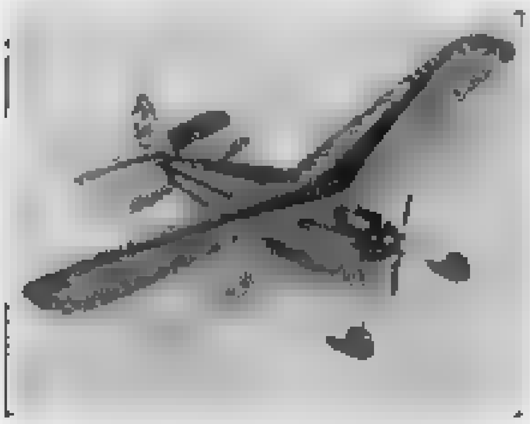
Dark evenings. Just the time to build a petrol model. You will have hours of splendid enjoyment



THE CLOUD AIRMASTER

Amazing performance, simple to build.
Wing span 7 ft., length 4 ft. 8 in. Weight 4¼ lb. For ease of transport the wings divide. Tail-plane, fin and undercarriage are detachable. Any 6 h.p. engine may be fitted. The kit contains ample of all materials obtainable. Two very comprehensive sheets of drawings 53 in. x 31 in. Complete kit **52/6. carriage paid U.K.**

The finest scale model
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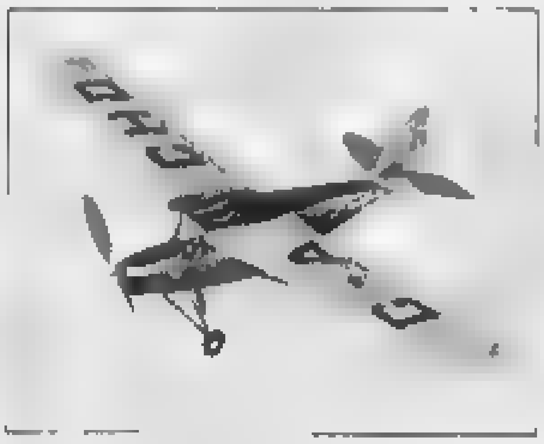


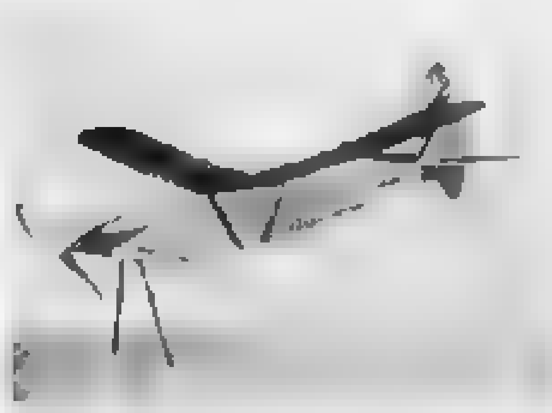
THE "LEOPARD MOTH"

Exact 1 in.—1 ft. scale. Span 36 in.
Weight 3¼ oz.
Designed by G. R. Crow

This model holds the British Flying Scale Model Records
Rise off ground, 1 min. 49.35 sec.
Hand launched 1 min. 2.15 sec.
Other successes are
"Frog" Trophy 1937—First place
"Flight" Trophy 1937—Second place
"Flight" Trophy 1938—First place
"Flight" Trophy 1939—Second and third places

Longest official time to date 2 min. 12 sec. rise off ground (timed out of sight). This model is a correct replica of the well known De Havilland "Leopard Moth," one of the most popular private owners machines ever produced. Although a scale model it has the performance of a duration machine. We do not recommend our very young friends to commence the hobby by building the "Leopard," but we can say with every confidence that it can be built by anyone who has constructed a model previously.
The kit contains everything you will need for the construction. Ample best quality balsa wood, every rib in the main-plane, tail-plane and rudder, also all formers and bulkheads are clearly printed on sheet balsa. Dopes, cement, celluloid wheels, square rubber, tissue, brush, etc., a splendid easy-to-follow print and over 2,000 words of instruction for building. Undoubtedly it is the best value on kits offered. Build one now and walk off with the cups."

Price of complete kit, with full instructions and finished propeller, **9s. 6d. Carriage 6d.**



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Wing span 26 in. Length 17½ in. Weight 2 oz. Designed by R. J. O'Neil. Designed especially for the beginner. The fuselage, tail-plane and fin are all made of sheet balsa wood. Construction is very simple and materials supplied are ample. Entire kit, with instructions, print. Finished propeller. Wing ribs stencilled out to facilitate accurate cutting.

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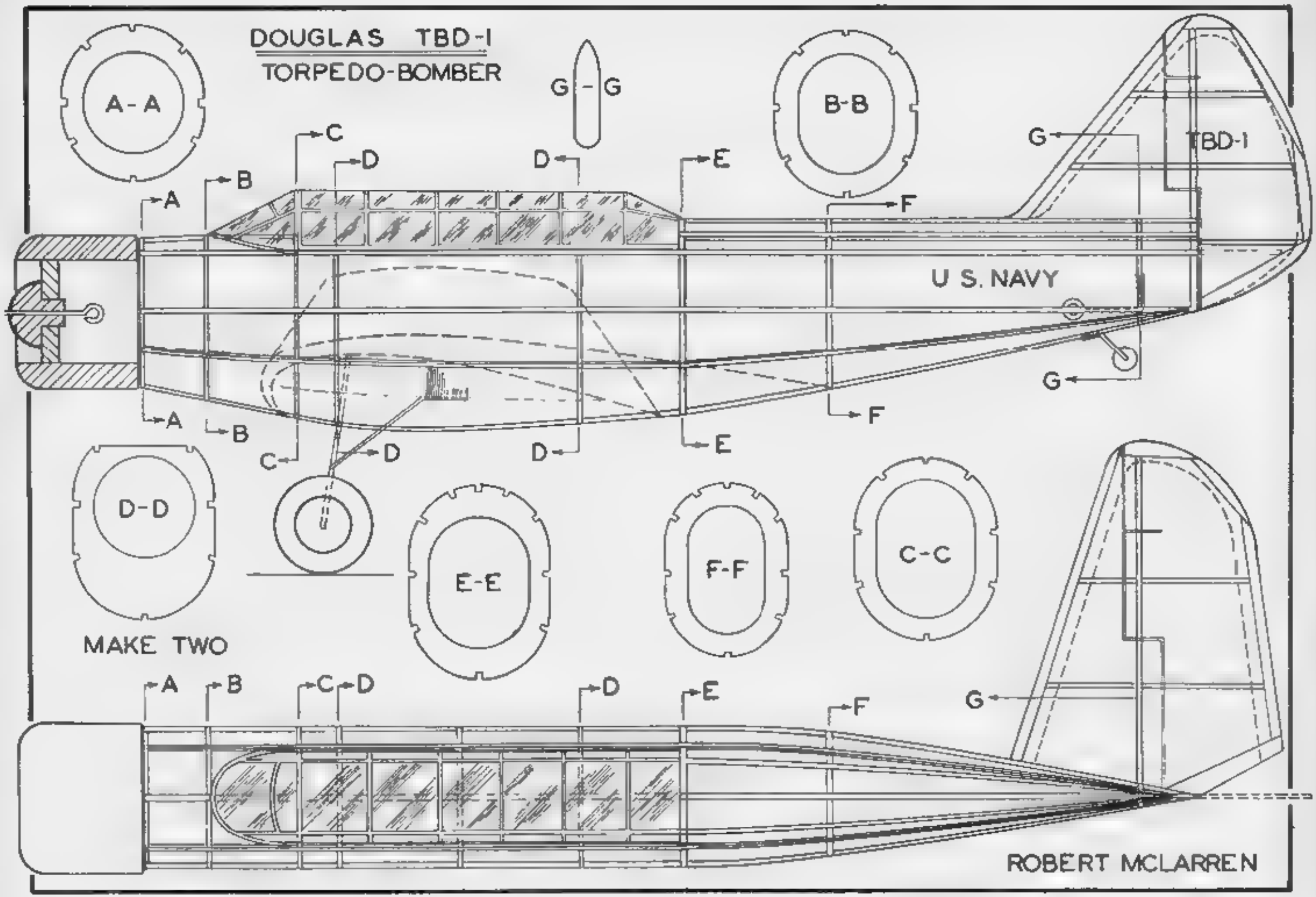

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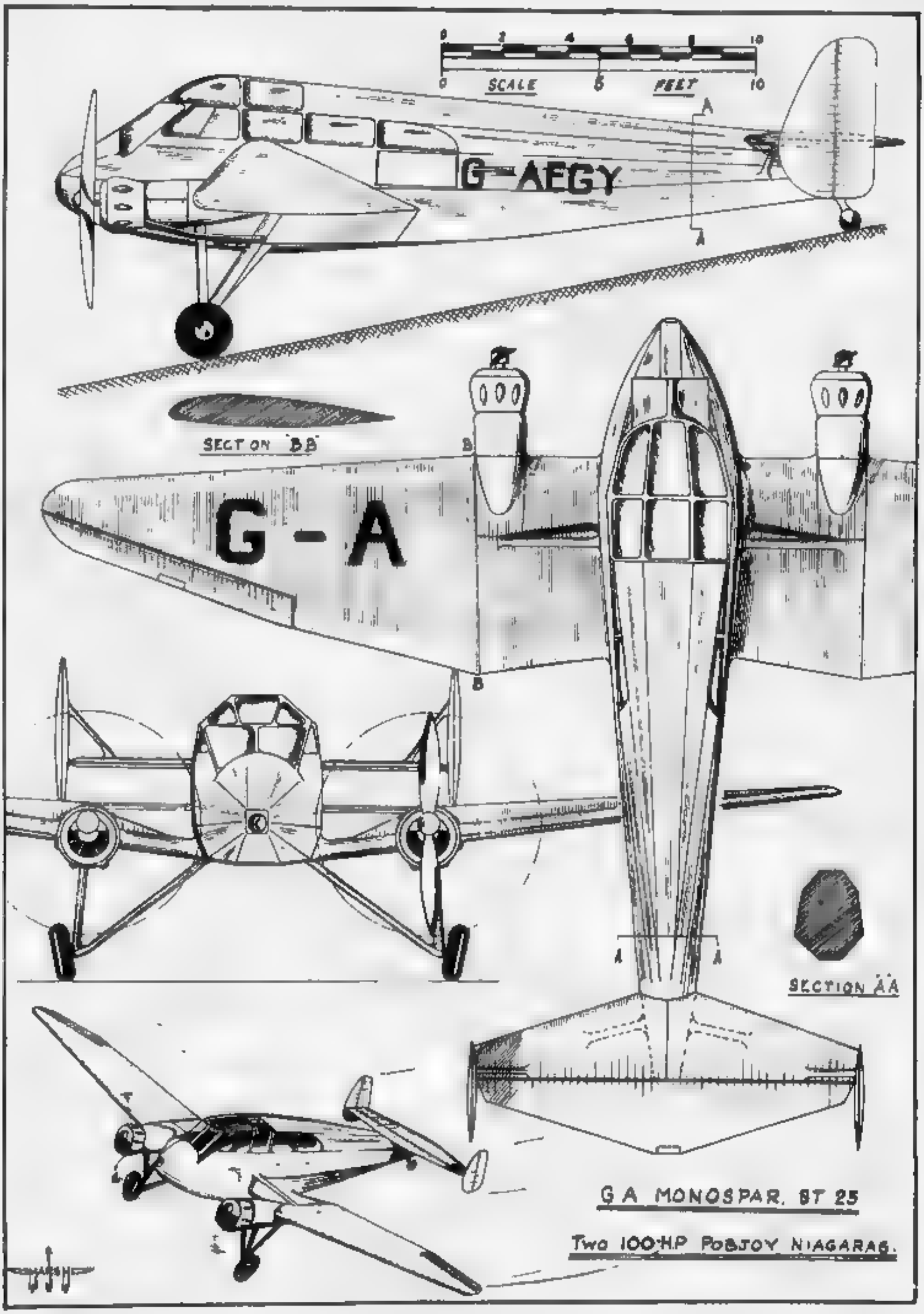
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POLE FLYING

By W. A. EDWARDS

SEVERAL months ago, Clubman asked for information regarding the above, and as I have had a fairly extensive experience of same over the past twelve months, I am writing this article with the hope that it may be of interest and help to fellow modellers

It is, of course, generally known that pole flying has become a very popular sport at indoor meetings of many clubs, and competitions for same are quite numerous during winter months Many fine durations have been made, and I am confident that in the future these times will soar to dizzy heights

During last winter the Liverpool Model Flying Club held a very interesting pole flying contest, which consisted of the following

(*a*) Duration
(*b*) Take-off
(*c*) Weight lifting

A separate evening was devoted to each round, each competitor being allowed three flights, and the member who gained the highest number of points in each round was presented with a silver cup

The rules were as follows:—The machines were restricted to a maximum span of 80 inches, and the fuselage had to comply to S M A.E. formula.

The same powered motor and the same propeller had to be used for each event, the idea being to produce a really good all-round machine

I am giving the results, and particulars of the first three machines, and these I hope will be found of interest, especially as all were obtained under normal conditions

So much for a club event Now, I wish to turn to a side of pole flying that to me is most interesting, and I believe has so far been overlooked by most pole flyers

The Pole as a Test Bed

There are many who think the pole can only be made use of by small and light machines, and can be of no use to the heavy-weight and outdoor flyer, this I have proved to be entirely wrong

For instance, I have flown machines from twelve inch span, weighing less than one ounce up to machines of Wakefield size and loading, with complete success round the pole

Making first flights of a new machine is, I think, an ordeal to most of us, but by using a pole, all one's worries cease, because it is possible to take out all snags without any fear of a crash

I find an adjustable pole of great advantage for first tests, especially if one has to use a fairly short line.

My indoor flying has to be confined to a 20 ft circle

I start all first flights of a new machine with my pole eighteen inches high, and just sufficient turns on the motor to make the plane run round fairly fast, but still on the floor.

Then I increase by twenty-five turns at a time until the machine just clears the ground. If she is shaping O K. I put on another twenty-five turns and watch results, and so I keep on until I am quite sure she is O K up to half max turns

Next I increase the height of my pole to three feet, and carry on as before to three quarter full turns, when I finally raise my pole to five or six feet, and put on full turns.

(With a high pole, if all is not O K, you are very liable to take a wing off more especially if your bus is a low wing job!)

When I have got my machine behaving like a perfect lady, I start collecting some data, and here is where I make some good use of the old stop-watch

Duration is, of course, generally first on the list, so by counting the circuits as she is ticking off the seconds, I can calculate the actual distance flown, and from this the average speed of my machine in these conditions

By this time I know how many circuits my 'plane is doing on full turns, so I now make another flight, and this time clock my first two and last two circuits only

From these times I can calculate the top speed and the stalling speed of my bus, and in some cases I have been very surprised at the difference between these two speeds!

Next I try out my propellers of different diameter, pitch, blade area, shape, etc., on a standard motor, and note the different durations in times and distances, also take-offs

Next still I try different motors on the same propellers and log my results again. (Try out three- and four bladed props., and note the differences in your speeds times, and distances flown also the difference in the stability of your bus!)

I have found a marked difference in stability of some low-wing jobs when using three bladed props., as against the two

And now to those people who think that indoor pole

HEIGHT OF POLE, 36 in. LENGTH OF CORD, 6ft. 9in.

	Type of plane	Length of fuselage	Wing span	Type of wing	Aspect ratio	Wing area sq in	Wing section	Type of tail	Tail plane area	Fin area	Dia. of prop
1st	High wing	26 in.	30 in	Taper	7·5	120	R.A.F 32	Clark "Y"	42 sq in	13 sq in	12 in
2nd	"	25 in	27 in.	C. Chord	6·3	116	R A F 32	Lifting	40 sq in	14½ sq in	13 in
3rd	"	18½ in.	26 in.	Elliptical	6·25	108	Clark "Y"	Non-lifting	36 sq in.	10 sq. in	10 in.

The exceptionally low times on several

fly n[illegible] an be of n[illegible] use to the W[illegible]keld far[illegible] My answer is, " Don't you believe it ! "

When testing outside, one is never quite sure as to w[illegible]at is happening, for condit[illegible]ons are chang[illegible]g from second t[illegible] second, and co[illegible]sistent [illegible]ng[illegible] s almost impos[illegible]sible. Again, flight paths change with each flight, and the presence of trees, ponds, and the [illegible]e of the ground can all affect your flight

During my indoor testing I have on many occasions made as many as six and seven consecutive fl[illegible]ghts all within one second difference in duration

You will also find that with the heavier loaded machines the variation of trim is very little between your pole and free flight in the open. You can also expect at east lo[illegible]ble l[illegible]ration in free flight t[illegible] what you get in the pole, and this I have proved in many cases.

As one examp[illegible]e, I recently designed and built a r[illegible]achine of 150 square in[illegible]hes area with a fixed w[illegible]g pos[illegible]tion, trim being obtained by ballast and tail-plane adjust[illegible]ment. I trimmed the [illegible]plane in my pose, and t[illegible]ed [illegible]et two propellers, one a 10-inch diameter of 1 diameter pitch, the other an 11 inch diameter 1[illegible] diameter pitch

The 10 inch prop. gave me very snappy flights of a[illegible] [illegible]esistent 65 sec. durat[illegible]on on f[illegible]ll flig[illegible]ts with a take off of 10 degrees on an 18-foot circle

The 11-inch prop. gave me flights of 80 sec. duration, but my take-off d[illegible]stance went up to 130 degrees. I was using the same motor in each case, of course

Three days later I took this machine to a competition with the sole object of proving that a machine can be trimmed on the pole, and as one flight had to be an R.O.G. I decided to use the 10-inch prop

The machine w[illegible]as taken straight out of its case, wings, tai[illegible], etc[illegible] being [illegible]laced on pole settings and wo[illegible]nd t[illegible]e mot[illegible]r up

The 'plane made two H.L. and one R.O.G. flights a[illegible]nd over one minute out of s[illegible]ght and we[illegible] up but gli[illegible]ding down in a nice flat glide

HEIGHT OF LINE FOR TAKE-OFF TEST, 1 ft. 6 in.

Pitch of prop	Length of rubber	No. of Strands	Rubber section	No. of turns on rubber	Duration of flight in sec. 1st flight	2nd flight	3rd flight	Average time	Times round pole	Distance flown in feet	Speed of 'plane, m.p.h.	Weight of 'plane	Weight carried	Take-off distance
				880					18¼	930	11·2			
18 in.	43 in.	10	⅛ × [illegible]	960	56·7	7	59	40·9	3	152	14·8	4¼ oz.	4¼ oz.	7 ft.
				1,020					20	1,019	11·8			
				520					9½	480	10·9			
18·6 in.	33 in.	8	¼ × [illegible]	520	30	12·5	3	15·2	5½	277	15·2	5 oz.	3·25 oz.	6·6 ft.
				520										
				175					6	300	11·6			
15 in.	18 in.	14	¼ × [illegible]	250	17·8	6·5	5	9·7	2	100	10·6	3·5 oz.	1½ oz.	6 ft.
				300					1½	75	10·4			

Flights were due to touching down

LETTERS TO THE EDITOR

DEAR SIR

Interest has lately been aroused in the building of model speed 'planes, and in the August AERO-MODELLER read an article which described a method of timing them, using two observers with stop watches

This method is subject to two separate human factors of error, and I should like to remark on this, and suggest a better method of timing

I recently assisted in a series of experiments to find the "time lag" of several people, between receiving a signal and responding to it. Since the method suggested for timing these 'planes involves two observers with stop-watches, which must be accurate to within .01 sec to be of use, these experiments are of interest to us

The subject sat with a Morse key and an unlighted electric lamp in front of him, and was told to press the key, on which his finger was resting, immediately he saw the lamp light. The interval between the lamp lighting and the key being pressed was measured by a trace on a revolving smoked drum, made by a pointer on an electro-magnet, in series with the Morse key and light. The time-lag due to the apparatus was almost non-existent, and the interval was measured by means of the curve made on the drum by a tuning fork of frequency 100 cycles per second

The time-lags were thus measured accurately to 1/100 sec., while 1-1,000 sec. may be judged with reasonable accuracy. Below are the time-lags of seven people, each being the average of several readings

Person	a	b	c	d	e	f	g
Average Time-Lag	.210 sec.	.245 sec.	.290 sec.	.190 sec.	.210 sec.	.170 sec.	.200 sec.

Thus, of the seven people tested, of whom I was one "d" can press the key, or a stop-watch knob, 1-10 of a second before "c" if they both see the light, or 'plane, at the same time

Now, if they are the two timekeepers, and "d" is at the beginning of a 44 ft. course, and "c," at the end, the time found for a 'plane will be 1-10th of a second too long. At a speed of 80 m.p.h., which is suggested for the 'plane described in the article, this will make an error of about 25 m.p.h.!

Moreover, the reaction times of one person vary greatly from time to time, and watching a 'plane flash past a mark is not so simple as sitting in a laboratory watching a lamp

May I, therefore, suggest that if such speeds are attempted in important contests, or, for S.M.A.E. records, some apparatus such as the following is necessary

The 'plane is flown on a course of at least 220 feet with a good mark at each end, and on the right bisector of the course, about 250 feet from the course, is the timer, who uses the sights described below

An arm holds a cross-wise sight at each end, and is pivoted at the middle. At one end is a connecting rod, one end of which is pivoted to the sight arm, and the other end of which runs in a straight slot, and bears a horizontal celluloid pointer, at right angles to itself. This touches a drum covered with smoked paper, which revolves on a horizontal axis. It is used as follows: The sights are laid on the starting mark, and the drum revolved, to give a trace on the smoked paper. The pointer is moved off the drum, the sights laid on the finish mark, and the pointer replaced to give trace "f." The pointer is then removed and replaced when the sights are laid on the machine, waiting to take off, some distance from the start of the course

The machine takes off, and is followed throughout its flight by the sights, while the drum is revolving at constant speed. The curve "c" is thus made on the drum. A pointer on a tuning fork is then held against the drum, and a trace "t" is put on

It may be seen that "a" is the length of drum traversed while the 'plane, and sights, traverse the course. The number of crests of the tuning fork trace in length "a" are then counted, and if the tuning fork has a frequency of 100 cycles per second, this gives the number of 1/100ths of a second needed by the 'plane to traverse the course

Naturally, the small club would not feel inclined to worry about an apparatus of this type, but the S.M.A.E. might be able to adapt it for their use in their annual speed contest, or for record attempts. The drum could be driven by an electric motor running off an accumulator, and it may be smoked by burning pieces of cotton wool and soaked in turpentine, under it while it revolves, thus making the apparatus independent of indoor facilities

It could probably be built of wood and Meccano parts

Yours truly,
A. JENNINGS

DEAR SIR

Once again the Wakefield has been won by one lucky flight, and once again I suppose people will scream for an increase in wing loading of Wakefield models

The Wakefield model of to-day is, in my opinion, the ideal contest model, and it seems that we are approaching the question from the wrong angle when we consider altering the present specifications

I think a better idea would be to alter the rules relating to the timing of the models for their averages

Let the competitors make their three flights as before, but the average of the *two worst* flights only to count

This would entirely rule out the one lucky flight business and would give the prize to the most consistent flyer

If this ruling were adopted it would mean that three good flights were necessary to do anything, and if these included two thermal flights it is the machine that is pretty good, not only luck!

Yours sincerely,
R. WARING

DEAR SIR

After reviewing the past season we feel that if the thermal flight could be eliminated from competitions of major importance a far truer and fairer comparison would be the result. The elimination of the lucky flight cannot be achieved by increasing wing loading (unless carried to an extreme), or decreasing the size of the 'planes, or altering the amount of rubber carried. In fact, it is impossible to eliminate the thermal flight, but we can

eliminate from the results the colossal figures which have graced the last two seasons' major competitions.

The method which we suggest is this:

(1) Allow three flights as at present.

(2) The longest flight (thermal or otherwise) figures allowed shall not exceed twice the second longest flight.

(3) The elimination of the no flights.

To explain (2) more clearly the following figures should help:

	1st flight.	2nd flight	3rd flight	Allowed figure (longest)
(A)	1½ min.	2 min.	30 min. (therm.)	4 min.
(B)	2½ min.	2½ min.	4 min.	
(C)	1½ min.	1 min.	45 min.	2 min.

Were these the actual figures in a competition (C) would have won on the 45 min. flight. Surveying his first two flights, we find that his 'plane is really a poor performer. (A) is certainly better, but (B), in our opinion, should really have won. With regard to (B), as allowed figure in the last column, no figure is recorded, as his last flight of 4 min. did not exceed twice his first flight, which was 2½ min.

Now for point (3). We believe that anybody coming to a competition with a 'plane badly adjusted so that its response is only a flight of 5, 10 or 15 sec. does not deserve any consideration. Not only does he put off time, but causes a lot of unnecessary work for timers and officials. This type of nuisance should be barred.

The 'planes taking part in any competition are usually considered to be as perfect as far as the modeller can make them. Allowance must, of course, be made for the fact, by take-off due to wind or construction, but this does not necessitate nine no flights scrap.

Now, where are the loopholes, or can anyone find out an instance where this method would not deal with the situation?

Is consistency the true measure of a champion?

THE QUERISTS.

IMPORTANT NOTICE

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Owing to the difficulty of distributing journals in war-time it is imperative that readers should place a definite order with their local Newsagent for regular delivery of their copy each month.

Due to recent movements of the population there have been temporary shortages of copies in one or two districts. We would be glad if readers would let us know of any instances where they have had difficulty in obtaining their copies. There are copies of recent issues available at 6d. each post free, from the offices of the "AERO MODELLER," Allen House, Newarke Street, Leicester.

USE THE ORDER FORM ON THE BACK INSIDE COVER PAGE—NOW!

HOW TO BUILD A FLYING SCALE MODEL OF THE

This 'plane has been specially designed for The Aero-Modeller *by Mr. C. A. H. Pollitt our staff draughtsman. Opposite the Editorial is a photo of the model built by Mr. Pollitt The photograph has, of course been "retouched" by our artist, and the model was photographed against a natural background. We commend this photograph to readers who study model photography as an example of how we think a model should be photographed. If carefully built this model will give durations of 30 to 35 seconds R O G*

IT is perhaps a sign of the times that the model forming the subject of this article is based on the design of our latest and most familiar single-seat fighter Be that as it may, there can be no doubt as to the popularity of the Supermarine "Spitfire" with its established and enviable reputation

Apart from its remarkable turn of speed, the "Spitfire" is identified by a variety of characteristic features, the elliptical wing form, the pronounced forward and outward rake of the cantilever undercarriage, and the radiators slung under the wing, are all contributory to the quite distinctive lay-out

While these familiar characteristics are, of course, inevitably retained in the model, I have endeavoured to combine with them a very rigid principle of construction A typical instance is the case of the elevators, which are constructed as a single unit, that is to say both the port and starboard elevators are integral, and comprise a main spar, which passes through the fuselage, and picks up with the top longitudinal member of the fuselage. In addition, the leading edge of the elevators is so arranged as to pick up with No. 9 fuselage former, while the trailing edge of the elevators also connects with the previously mentioned main spar

By this arrangement maximum rigidity is assured, though a certain amount of care is necessary in assembling the elevators with the fuselage, since once the top longitudinal member of the fuselage has been placed in position it is not possible to fit the elevators I am not only making this point clear at the beginning, but also, I suggest, that by way of making a start on the construction of the model, we make the elevators first This will assist considerably in eliminating any possibility of putting the cart before the horse, as it were, and apart from this solitary limitation, we can then proceed with constructing either the wings or the fuselage

Confining our attention to the fuselage, little difficulty will be experienced in its assembly Perhaps the most straightforward procedure is to first attach the eleven fuselage formers to the two fuselage side members, taking particular care to ensure their being in correct alignment By next placing the previously assembled elevators in between fuselage formers 9 and 10, and allowing the elevators to rest temporarily on the fuselage side members, the top rear fuselage member can then be placed in position, cemented to the fuselage formers and the elevators finally secured in their correct position All of which sounds rather complicated, but is actually quite simple

To complete the fuselage structure there now only remains to be added the top front member and the keel piece, which extends the full length of the model The motor may next be installed In proceeding with the rudder, it will be observed that the forward edge of same is accommodated, at its base, in a cut-away in the top of the fuselage It is necessary that this joint should be a firm one, and attention should be paid to the note concerning it on the drawing

Another prominent feature in regard to the rudder is the method of attaching $\frac{1}{8}$ in. square balsa struts on each side, and sandpapering them down to give the usual streamline shape, which would otherwise have been obtained by fitting ribs, similar to the ordinary wing ribs I find that this is not only facilitates quick and easy assembly since it is a less exacting job but that it results in a much stronger rudder and fin, and also eliminates any vertical member or rudder post

A useful tool for making jobs, particularly stringer notches, is a $\frac{1}{16}$ in. square Swiss file such as can be had from any high class tool store or ironmongers These files are usually about five inches long and cost no more than a shilling. As I say, they are invaluable for making stringer notches, and I strongly recommend their use for this purpose

From the drawing it will be seen that all stringer positions are shown on the fuselage formers While these are essentially accurate it is nevertheless best to position the stringers on assembly this avoids all possibility of any kinks occurring as the result of a notch possibly being out of position

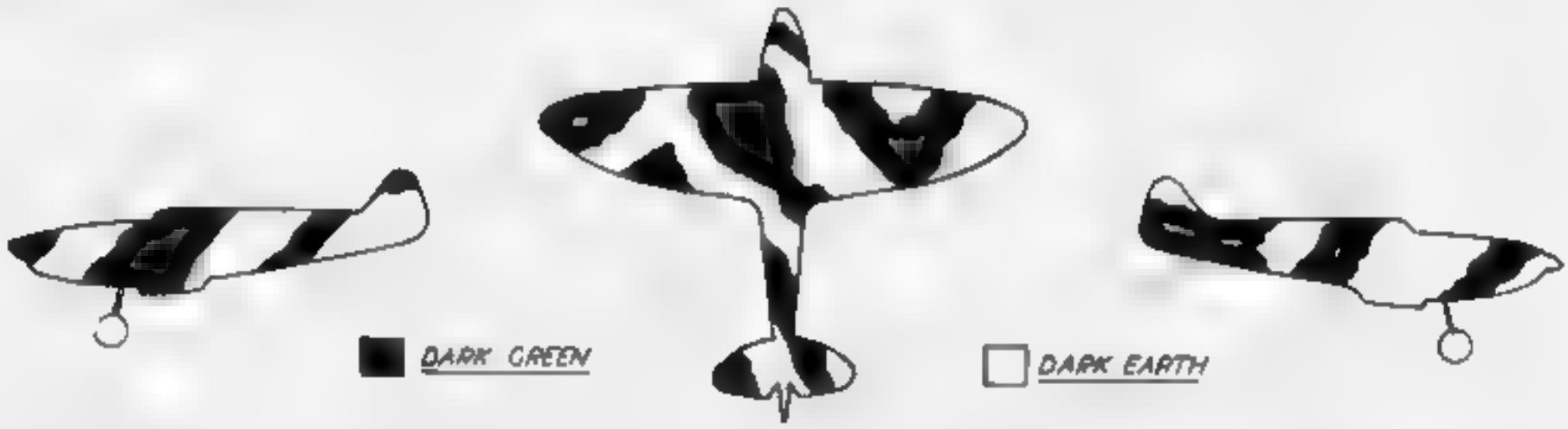
The pilot's cockpit is a straightforward job, simple to build and easy to cover After having fitted the decking and attached the front hoop, the celluloid can be applied I find that by far the best method of "glazing" a cockpit is to use a cellulose adhesive tape. As the name implies, this is a transparent tape, adhesive on one side and glazed on the other, and in appearance identical with thin celluloid or cellulonne It can be obtained from most stationers in rolls of various widths, and is quite inexpensive The procedure involves nothing more than cutting off a length of tape sufficient to cover the cockpit and laying it in position with the adhesive side lowermost. It may be necessary to lightly press the tape against the model, after trimming the edges, but nothing further I need hardly mention that in this particular case the cockpit is covered in two pieces, the main piece being from the back of the cockpit to the front hoop, the smaller piece constituting the windscreen When laid flat this latter is a crescent shape

The wings are the keynote of simplicity, and apart from guarding against the natural tendency to make two port, or two starboard wings instead of one port and one starboard, there is not a great deal in their making At first sight the wings may appear in plan view to be symmetrical about their longitudinal axis and under this impression it may be thought that the leading edge and trailing edge are identical Thus, of course, is not the case the trailing edge is of a distinctly different shape from the leading edge, and care needs be taken to avoid confusing the two

Again neither the leading edge nor trailing edge are shaped to fair into the [illegible] but rather there is a step where they join [illegible] to make the as simple a job as possible, and to dispense with what is, to my mind, a certain amount of unnecessary work, particularly with a model of this size, for quite obviously

SUPERMARINE "SPITFIRE"

By C. A. N. POLLITT



These three sketches show how the shadow shading camouflage is painted on

the tissue, when doped, will create the desired effect, since the step-up from the leading or trailing edges is so small as to be almost negligible. In point of fact, when the wings are covered the finished effect is no different to that obtained by the use of a shaped leading and trailing edge.

The wings derive a good proportion of their strength particularly in a heavy landing, from the wing fillet which connects the trailing edge with the fuselage keel piece. Lengthwise, this fillet should be left a little longer than is really necessary, and afterwards trimmed to the required length when assembling. The trailing edge and the curved edge of the wing fillet should be sandpapered down to a sharp edge.

The starboard wing is distinct from the port wing, in that it carries the air intake which, on the full size "Spitfire," houses the oil coolers.

Before covering the model, the air intake to the carburettor and the undercarriage should be fitted.

After covering the model it should be given one coat of shrinking dope, and left to thoroughly dry before painting.

The camouflaging or "shadow" shading calls for a careful choice of colours, if any degree of reality is to be attained. The two colours comprising the camouflage are officially defined as being "green and dark earth." A poster colour dark green approximates very closely to the former, though it is difficult to get a paint of exactly the same shade as the "dark earth." A close resemblance may be had, however, by a mixture of white and brown, with the brown predominating. The underside of the model is entirely silver, with the registration numbers in small black figures.

The squadron markings and the insignia are the final embellishments. The letters F.Z.L. are best made from thin paper, and the paper first of all given a coat of grey paint. The letters appear in the same order on both the port and starboard sides, that is, as shown on the drawing, with the insignia in between the Z and the L.

The insignia represents the more recent style, with the red centre and the dark blue outer circle—not the red, white and blue encircled by a yellow ring, as was formerly the case. To make this insignia, all that is required is to take a standard red, white and blue insignia, of about 1½ in. diameter, and cut the blue portion away; this leaves the red circle surrounded by the white ring. The white ring is painted a dark blue, and the insignia is complete.

The model should be tested in a field of long grass and first allowed to glide, in order to check the general trim. With a well-stretched and lubricated motor, a maximum number of 120 turns may be safely applied. An initial number of fifty turns should be tried first, this being gradually increased until the motor has stretched and will take the full number of turns.

LIST OF MATERIAL REQUIRED

Sheet
- 1 sheet of ⅛ in. × 3 in. × 3 ft. (formers, top and bottom keel, etc., etc.).
- 6 lengths of ⅛ in. × ¼ in. × 3 ft. (stringers, etc.).
- Small pieces of balsa block for propeller spinner and air intake to carburettor.
- 1 sheet of ⅛ in. × 2 in. × 1½ ft. (wheel covers, air intake to oil coolers, etc.).
- Several inches of ⅛ in. Tonkin bamboo (undercarriage).
- Several inches of 22 s.w.g. piano wire (undercarriage, tail and nose hooks, etc.).
- Pair of 1 in. dia. celluloid wheels.
- Small hardwood wheel for tail.
- 5 in. dia. Paulownia or Hollcraft Propeller (with spinner).
- Cup washers and small hardwood plug for nose.

Wings
- Ribs, or those of leading and trailing edge cut out of (...) sheet used for fuselage.

Tailplane and Rudder
- Parts for these are also cut out of ⅛ in. sheet obtained for fuselage.

Sundries
- Tube cement.
- Two sheets of tissue (white).
- Tissue paste.
- Bottle of tightening dope (clear).
- Bottle of khaki drab and bottle of olive drab for shadow shading.
- Small tin black dope for touching up, details, etc.
- Cellophane for cabin.
- 4 strands of ¼ in. flat rubber, 3 in. longer than the fuselage.

FULL-SIZE SCALE PLAN FOR THE MODEL IN THIS ISSUE

AT THE SIGN OF THE WINDSOCK

A. M. Sweeten Ltd., of Bank Hey Street, Blackpool, are a well known firm that specialise in flying scale kits. They have recently sent us for examination, a kit for building a replica of Captain Mollison's De Havilland "Puss Moth." This kit is one of the popular "Tower" series of entirely British manufacture. Full details of these kits are to be found in Messrs. Sweeten's advertisement on page 22.

We have carefully examined the above kit, and find that it is extremely good value for money. All ribs, bulkheads, etc., are finely printed on good quality balsa sheet. Tubes of cement and tissue paste are provided, and two propellers, one for flying purposes and one for scale or exhibition.

This kit should make up into a very attractive little model, and being a high wing monoplane should fly well. Full instructions for building and flying are given in the kit as well as a booklet of useful hints.

* * * * * *

Model Supply Stores, of 17 Brazennose Street, Manchester, are advertising this month, for the first time, a new kit of the "Lynx Cub." This kit, as the name suggests, is a smaller version of the Model Supply Stores' popular "Lynx" Wakefield kit, and is also designed by Mr. A. Tindall, of the Lancashire M.A.S. This fact alone should be sufficient to commend it a ready market and we are assured that the performance of the model is well up to the high standard of its parent.

The kit is complete with specially finished balsa propeller and ribs, etc., beautifully printed on good grade sheet. We have also examined the plans for this model and they appear to bear out all the manufacturers claim for it. The price is 9s.

Model Supply Stores ask us to remind their customers that they still have large stocks of the popular "Scientific" and "Bunch" kits, also complete range of Bunch "Gwyn Aero," and "Mighty Midget" petrol engines. It is advisable, however, for all customers, old and new, to send for the special emergency catalogue, owing to the various alterations that are occurring through the present crisis. M.S.S. advertisement is on page 5.

* * * * * *

Chingford Model Aerodrome, 153 Station Road, Chingford, manufacturers of the "C.M.A.1," and "Wilfly" range of kits, whose advertisement appears on page 731, have had many requests for catalogues from aero-modellists. They have asked us, therefore, to point out that their business is wholesale only. If aero-modellers experience any difficulty in obtaining the products of this well known firm, they are asked to write to Chingford Model Aerodrome, giving their dealer's name and address, when the manufacturers will endeavour to get the dealer to stock their products.

Chingford have sent us a sample of their range of solid scale kits, the De Havilland "Dragonfly," which we have examined. These kits are especially well put out. They are packed in a stout box, with a photo of the type of model on the lid. The kits contain wings, fuselage etc., neatly cut to shape out of balsa, cement, two tins of coloured enamel, super detailed blue print, seats, insignia, wheels, and complete instructions for making an attractive solid model.

In each kit there is an entry form for the Chingford Model Aerodrome's monthly competition. All you have to do to enter is to send in a photo of your model when complete. There is a prize of a kit each month for the nicest model constructed from one of these kits. *Your* opportunity to prove what a swell builder you are!

* * * * * *

Undoubtedly one of the pioneer manufacturing firms of scale model kits in England is The Model Shop, 2 College Road, Newcastle-on-Tyne. These manufacturers have a comprehensive range of approximately twenty kits to choose from at prices ranging from 1s. to £3 15s. 0d.

The Model Shop was also the original firm to manufacture "Air Wheels" in England. These range in size from 2½ in. to 4½ in. diameter, and a guarantee of twelve months is given with each pair of wheels. The products of this firm are amongst the most reliable in the trade and are obtainable from almost any first-class dealer, or direct from 2 College Road, Barras Bridge, Newcastle-on-Tyne.

Our readers would be well advised to send for this firm's full illustrated catalogue, which shows, amongst other things, a range of petrol model kits, from 23s. to £3 15s. The catalogue costs 3d. post free.

In their advertisement on the front inside cover page of this issue this firm feature the M.S. "Bee." Petrol Model Kit at 23s., also the Hawker "Hurricane" Flying Scale kit, price 4s.

The Ashton Model Aero Supplies wish us to announce that they have just placed on the market a superior line of hand-carved propellers. These are carved from best quality balsa in their own workshops, and are guaranteed accurate having a wide blade. The propellers are being sold under the name of "Amastar," and Messrs. Ashton invite dealers to send for their trade lists. They also carry large stocks of Japanese propellers, types P, D and B, which sell at very reasonable prices. Business is being carried on as usual, and their price lists can be obtained for 1d. stamp.

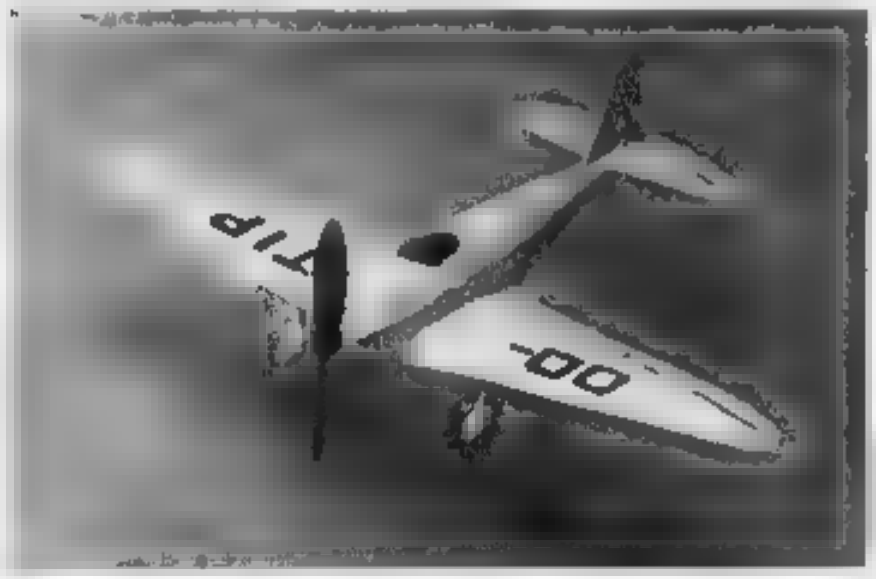
While stocks of The Sprite, their well-known cabin duration 'plane last, they will remain at 6s., but kits made up after then will have to advance in price as the cost of materials advances.

* * * * * *

Cloud (Model) Aircraft, 304 B High Street, Dorking, Surrey, are another firm who report increasing business at the present time.

This month, in addition to their usual full page on the back outside cover, Cloud (Model) Aircraft have a four-page advertisement on page 42. These two advertisements give a comprehensive list of kits for all types of models, complete with prices and details of accessories, materials, etc.

Cloud have sent for examination one of their new range of "Cloudcraft" scale kits, which retail at the low price



of 1s. 3d. There are twelve models in the series, and all are of 15 or 16 in. wing span. These kits are complete in every way, and make up into super little models, two of them, the Tipsy "S" and Hawker "Hurricane," being illustrated herewith.

The range includes the following: Supermarine "Spitfire," Hawker "Hurricane," Westland "Lysander," Blackburn "Skua," Fairey "Battle," Stinson "Reliant," "Leopard Moth," "Hornet Moth," Miles "Magister," "Gull" Duration Model, H.L. Sailplane and Tipsy S.

These "Cloudcraft" kits are entirely British manufacture, and are excellent value for money. They contain ample supplies of balsa, cement, tissue, and wheels and propeller, in fact, everything necessary to construct 16 in. wing span flying scale models.

* * * * * *

The Model Aerodrome, 144 Stratford Road, Birmingham, who are well known as retailers of the famous "Club" kits and "Drone" products, have sent us details of several new kits which they are marketing.

The "Club" Planer Glider is a graceful semi-streamlined cabin model of 31 in. wing span. The complete kit, with easy to follow plan and all material, including moulded lead for the nose, costs 8s. 6d. The second of the new kits is the "Club" Yoth, a beginner's duration model. The complete kit for this model is 4s.

The Taylor "Cub" is a 15 in. wing span flying scale model with movable wings, which The Model Aerodrome claim is the nearest approach to a duration model in the flying scale class. The kit is only 9s., complete with finished flying propeller and instructions and plan. The Model Aerodrome also sell a fine drawing for building a 36 in. wing span model of the famous Cunliffe-Owen Transport or Flying Wing, as it is popularly called. The plan with instructions costs 3s. 6d., and a really superb model can be built from these. Every detail on the plan is correct, and the model when complete is one of the finest the scale builder could wish for.

Two kits which will be out as we go to press are the Hawker "Hurricane" and The Vickers Supermarine "Spitfire." The price of both these kits is 3s. 6d., and they should prove very popular at this time, as there

Two examples of the excellent models which can be built from Cloud (Model) Aircraft kits—a Tipsy "S" and a Hawker "Hurricane."

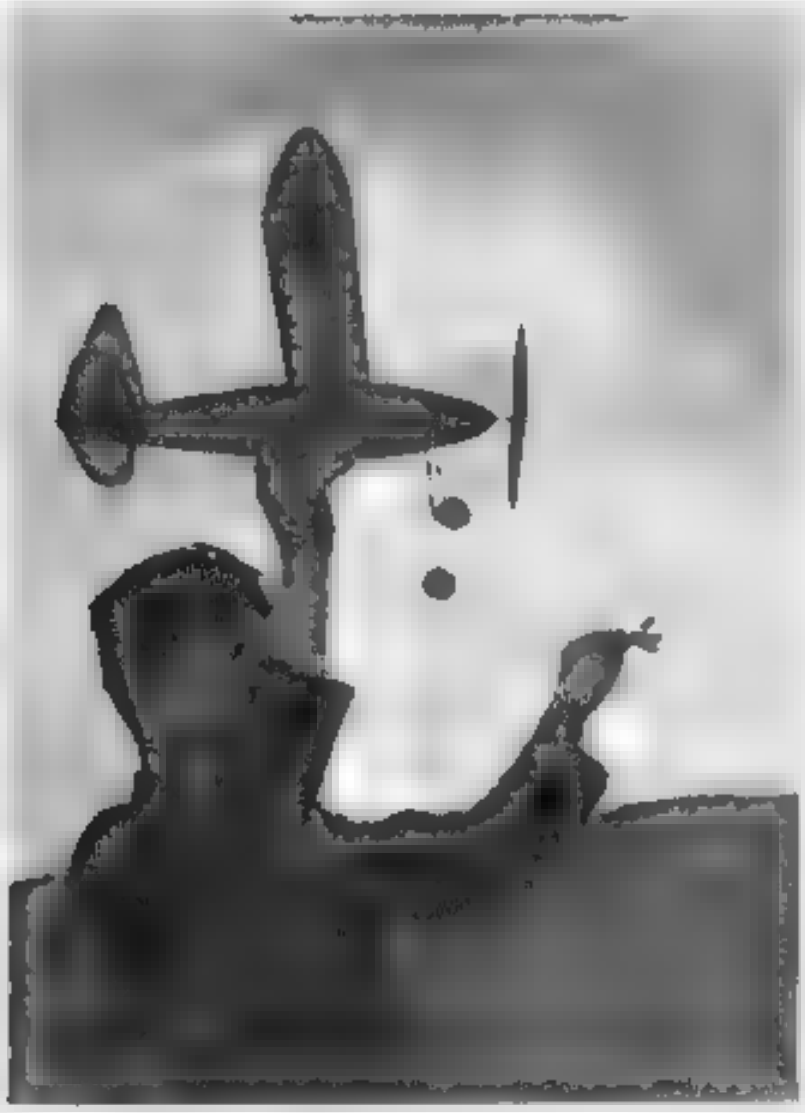
are sure to be many modellers who wish to make replicas of Britain's latest fighters.

* * * * * *

We would like to draw our readers' attention to a newcomer in our advertising columns. The Atlanta Aero Model Co., Atlanta Mills, Walker Lane, Dixon Lane, Leeds 12, are producing a series of flying-scale kits of entirely British manufacture. We have examined one of these kits for building a 16 in. wing span supermarine "Spitfire," and at 1s. 3d. each they are remarkably good value for money. They contain good quality balsa sheet and strip, cement, tissue, finished propeller, rubber, insignias and a glossy photo of the model, and are neatly packed in an attractive box.

The Atlanta Aero Model Co. have informed us also that they intend to market other series of kits in the near future at higher prices.

Full details of these kits and other products of this firm are to be found in their advertisement on page 52 of this issue.



Mr. F. P. E. Shawer, of the Winchester Club with a model constructed from plans given in "The Aero-Modeller."

CLUB NEWS— By THE "CLUBMAN"

WELL, it seems some days I have come to be again this month, and the number of reports is getting back to something like normal which methinks is a good sign. I am afraid many of you went off the deep end a bit, and without thinking, decided to drop everything until the "Big Row" is over. Still, congratulations to you who are carrying on, and as I said last month the best way to do our bit, until called on by the authorities for other business, is to keep on carrying on!

I must confess to not having a great deal to say myself this month—some of the boys were said "Thank goodness"—but, as usual, I hear little bits here, and see little bits there, and sometimes it is good to pass them on to you blood-thirsty villains who thirst for news.

Interested to see in an American publication—no names, no pack drill—that the grand picked for this year's Wakefield contest was anything but good, and gave cause for complaint. Surely the first consideration for a contest of this nature is the selection of a good site." With which, of course, we must fully agree, and to have our views confirmed by those on the spot is somewhat comforting. I might mention that the writer of this criticism is one who knows his model stuff, and not just someone writing to blow off steam.

At the time I write this there is still no news from official sources regarding the future policy of the S.M.A.E., and many opinions of a lack of confidence are going the rounds. This is unfortunate, but nevertheless true, and I would appeal to the Council to make an early announcement of their intentions as this is a matter that vitally affects many of us. An official note stating that the situation was under review would have been sufficient to quiet the voice of criticism, but with everything left in the air," it is not surprising that many rumours and condemnations are going around.

I have an idea of my own that I would propound, and I think it will interest most of you—at any rate, those of your interested in the Wakefield Cup and its future. May I suggest to the authorities that, providing suitable arrangements can be made with the customs and shippers, a team of able models is sent to the States next year, to be flown by proxy in the contest?

To those of you who would say that a model is not given a full chance when proxy flown, I would recall the instance in 1935 when Mr. Ives flew Gordon Lights's model into the winning place—and anyway, it would demonstrate to the world that we still have this important trophy at heart. Obviously the time is not opportune to set about raising a fund to send a team, as in August of this year, even if it were possible for such a team to travel under the present circumstances, but there should be no difficulty in the selection of suitable proxies.

The one snag would be the holding of the Eliminating Trials, and let me say right away that I would be opposed to any selection of the team by any other method. To suit the existing conditions, I suggest that, on similar lines to those proposed for the holding of Area Trials, the country be divided into six areas, the winning competitor from each area forming the team. Maybe the six best fliers in the whole country would not be found in this manner, but I submit it could well be a fair method under the travelling restrictions that would pertain to a great majority of intending competitors.

Also, I would be inclined to take a bet that such a method would create a great deal of interest over the whole country. To those who would say, "The best models would not be found," I would reply: "Are they found by the present method?" Because a fellow is able, either by location or financial ability, to attend trials held in London, it does not follow that he has a better model than an enthusiast who is prevented from travelling to Farey's. In actual fact, I know a number of chaps with exceptional building and flying ability who have never yet competed in a Wakefield Trial, and who, under the conditions suggested here, would be able to show their paces, and perhaps open the eyes of some of the stick-in-the muds who still think that ability is confined to London and its suburbs.

Well, there is the suggestion, and I would appreciate your views on the subject as soon as possible. Send your views, together with any modifications or suggestions you may have.

A letter has been received this month from an anonymous reader, who complains about the use of such youngsters as seen on last month's cover, claiming "it is a little embarrassing should he produce it in the train or in any company of non-aeromodellists." Well, sir, I'm afraid I can't quite agree with you, though your explanation of your criticism is very reasonable. Many people have regarded our hobby as a "kid's game," and it has been the work of many of us for years to spread the propaganda of universal appeal.

However, as a hobby of universal appeal, it behoves us to cater for all ages, and I doubt if anyone can claim any preferential treatment of any one class. This is only the second time this year that a youngster has been seen on the front cover of this magazine, and surely we cannot grudge them that. Live and let live you know.

A letter to hand from Mr. Watkins, of Swansea, informs us that two of the names of the South African entrants quoted in our list of the Wakefield placings, are spelt wrongly. Number 15 should read Dalgety, and not Dalgetz, as stated, while Number 22, Spango should be Spargo. Thanks for the information, Mr. Watkins, also the fine photos you sent along. These are reproduced here, and show a group of the competitors at the South African Wakefield Trials, and Messrs. Dalgety and Connoly, who were placed 1st and 3rd respectively.

Mr. Watkins, who knows many of the South African entrants personally, says: "The selection of the models to be sent to America took place at Maritzburg, in Natal, on April 9th. The winner of this competition receives the South African Wakefield Cup, which, incidentally, has been won three times in succession by Phil. Dalgety. Considering that each province in South Africa attempts to select six competitors for this event, the feat is rather extraordinary."

"The first six competitors are asked to prepare their models for sending abroad. This year I was fortunate to be placed fourth, but not being a South African, I decided not to send my 'plane, and thus enable South Africans to compete in the finals. Three of the first four places were captured by members of the Rand Model Aeronautics Club, and the club was naturally very pleased." Well, I should think they should be! It is pleasing to note that a full team of models was sent to New York this year, and may we hope that on some future occasion, when the event is once again held in England, that we may once again see that effort repeated.

D. Andrews, of the SHEFFIELD AIR LEAGUE SOCIETY, won a spot-landing competition held recently, being nearest the mark at 67 feet. Runner-up was G. H. Downs, who landed 91 feet away. (Dew yew know, in our field, that distance would nearly take us into the next county!) Mr. A. Parkinson received a special

Top left to right we show a group of competitors at the South African Wakefield Trials, and Rip, Conolly and Dalgety with their entries. Bottom left and right photos show a Rearwin speedster and patrol model, built by Mr. Farnworth. Bottom centre shows Mr. J. West, of Warrington, with his prize-winning Rucker Jungmeister (swastika since removed

trophy awarded for the highest duration of the season has time being 145 seconds. A new trophy, promised by Mr. J. D Canning, has created a great deal of interest in tow-line gliders, while another cup has been promised by the vice president

The SOUTH BRADFORD M A.C have procured a fine flying field at Reevy Hill Farm though weather conditions have been against much activity at the moment I am informed that the secretary of this club is Mr G Bradley, of 88 Frimley Drive, Little Horton, Bradford and not Mr Gascogne Sorry, chaps, but that was the information we received

The FURNESS M.A.S. are carrying on as best as possible, and an increased interest is being shown in indoor models, the black-out being responsible for a stimulation in building

Mr Sear e, of the KINGSTON AND D M A C got fed up with his model, gave it the limit, and lost it after 8 min O O S. Being returned two weeks later, from a spot two miles away, he is not so displeased with said model

J West, of the WARRINGTON M A S., advises that this club is still keeping the flag—and models—flying This chap won the scale Concours Class at the Northern Rally with a model of the Bucker Jungmeister, shown in a photo sent in (The swastika has since been eliminated. Why? Did the model need protection?) This model has won four firsts in four competitions entered At the Rally the club record went up to 5 min 21 sec

Bill Eden (Anthony for short") won a cup at the Cotebrook meeting, held on August Bank Holiday, with West last behind Having lost a perfect set of fields owing to religious maniacs, flying is now taking place on Saturdays on a farm at Grappenhall. (I bet this is not the only club to suffer through the machinations of such narrow minded interferers! I've had some)

A speed competition, held by the EDGWARE M A C was won by R. Parham, 2nd J. Kirby, and 3rd J Morris. Speeds up to 85 m p h. were obtained A single bladed, folding propeller model, built by Parham was flying very nicely, the type of prop. much improving the glide

The last competition of the year in this club was the Preservation Competition," open to those members who had not won a place during the season. J. Wallis was the winner, with R. Wallis second One of the entrants in this event was R Renshaw, until recently a member of a northern club (Southport, I believe), but unfortunately his model flew out of sight on a test flight, after clocking 15 minutes. Hard luck this, as he would have certainly won the event. J Morris was flying his record holding biplane, and later produced a low wing job, and proceeded to put up the club record for this type to 132 sec

J F. Hollingworth, of Spofforth Hill, Wetherby, Yorks., is anxious to get a club going in that district, and would be glad if other enthusiasts would get in touch with him

"YOU ARE RIGHT, IT IS A GAS JOB!"

The WHITSTABLE, TANKERTON AND D M A C have felt the drain of calling up, but are carrying on as best as possible Scale and pylon models are all the rage in the club at the moment, while I am sure that the 4 ft. " Graf Zeppelin " that is being built by the Secretary will come in handy for a balloon busting event ! This club wish to know when the rules for next year's Wakefield event will be published, as at least one member is hopeful of a trip to America Blimey -wot a 'ope in these 'ard times!

1939 prizewinners were presented with their cups, etc., at the meeting of the LANCASTER M A S , held this year minus the usual feed and dance Adolph, the cause of the trouble, is advised to buy himself a model aeroplane kit, and give himself something worth while to think about. Lucky members were :—

President's Cup : W. D. Foster
McDougal Cup (Biplanes) : W. D. Foster
T D. Smith Cup (Highest points gained in rallies records, etc) : C. C. Horner
Club Cup (Flying Scale) : C. C Horner
Foster Cup (Wakefield) R McDougal
Glider Cup : R. McDougal
Junior Cup : K. Reay.
Ladies' Cup : Mrs. E Broderick

During the flying of the ladies' event, one model was w. and truly " investigated " by a dog, while another suffered like at the hands—or should it be teeth —of a bull ' Evidently not the famous Ferdinand

In common with a number of clubs, the KETTERING AND D M A S has decided that a good winter programme will hold the membership together, and an attempt will be made to continue as usual, in spite of the loss of some of the officials through the usual complaint at this time—conscription

The EAST SURREY M F C , formed only last August, is unlucky in having its first season's activities handicapped so soon, and for the time being is temporarily suspending activities However, subs are still being collected, and held over till such time as it is felt possible to continue

At a meeting of the HAYES AND D M A C it was unanimously agreed to carry on, though handicapped by the loss of the ground at Heathrow—Farey's, to you mugs ! They are hoping when things have settled down a bit more that the ground will again be available with certain restrictions. Meanwhile, members are meeting at Chobham Common on fine Sundays, and every first Sunday of the month at the Lord Wakefield Hall, Hayes, at 11 a.m. Will those interested please note that the secretary of this club is now residing at Crosslands Caravan The Priory, Taplow, Bucks

The Secretary of the WOLVERHAMPTON M A C sends the following little poem for your amusement

' Oh, Clubman, here's a tale of woe,
Our club, which once was on the go,
Has dwindled down, and not through snow—
And who's the cause ? That so-and-so
Hitler '
For a club-room we now are rooting
Cause the Army's done a little looting
Our former room's a depot re recruiting
And who's the one we'd love to be shooting?
Hitler '

Secretaryship has changed hands in this club owing to the former " mug " being called up, the new chap being W. Roger Ormerod, of 8 The Crescent, Tettenhall Wood, Wolverhampton He holds the club record of 168 sec. while Mr Crewdson had done 78 sec with a tow-launch glider.

Robert Dittman, of 2828 Forest Avenue, Berkeley, California, U.S.A., would like to correspond with someone about his own age, which is 17, with a view to exchange of magazines, clippings, etc What about it some of you fellows ?

A photo sent in by Mr. F. P E Shawyer, of the WINCHESTER M.A.C., shows a model he built from plans that appeared in The Aero-Modeller It seems regrettable that a district like Winchester, with about 23,000 well-to-do residents, cannot hunt up more than a dozen enthusiasts for this sport, but here's hoping to see this condition improved

Another photo received is from the LANCASHIRE M.A.S., and shows a fine example of glider construction built by P. L. Smith This is a scale replica of the Falcon III, and shows some fine detail work, especially throughout the wing construction. Note the cross bracing carried through the ribs. Scale is 1 in to the foot

This club has already formulated a winter season for indoor flying, and intends to carry on as long as conditions allow Though many members have been called up, the committee feel that they will be doing a service by providing opportunities for both indoor and outdoor flying, until such time as they are forced to close down

A series of indoor flying meetings was scheduled to take place at the Manchester College of Technology on November 4th and 18th, also December 2nd and 16th All meetings commence at 2 p.m., and a further series will be arranged for the period following Christmas, according to the support received Competitions are arranged for the December meetings, and any club in the district who would care to attend and compete are cordially invited. Model specifications are

A nice-looking Dick Korda, built by Mr. J. Farrell, of Dublin.

The top left and right photos show Fox and Pocock, of the Halifax M.F.C., whilst top centre shows members of the Epham and Woking clubs at Brooklands. A fine scale Blackburn Skua is shown in bottom left, built by W. Borra. Bottom centre shows W. Crutcher and the Isle of Thanet Cup. The bottom right shows a realistic photo of a Hawker Hurricane, built by W. Leatherdale.

(*a*) *Pole flying duration.*—Fuselage type, with a maximum weight of 2 oz.

(*b*) *Free flying.*—Models may be either microfilm or tissue covered, with a maximum weight of 1 oz.

(*c*) *Scale pole-flying.*—Models to be of a recognised scale type, with a maximum weight of 4 oz. No restrictions imposed as to colouring or markings.

I fancy that this latter class will create some interest, as pole flying will give a greater chance of successful flying of delicate scale jobs than can be obtained in outdoor flying.

The affairs of this club have been entrusted to a trustee group of three members, who will not be called upon for service. It is also hoped to stage an exhibition in the New Year, when valuable prizes will be awarded for the best models on show. Increasing interest is evident in this club, and four new members have been enrolled since the war began.

Advice is sent of a new club, known as the HOWDEN AND DISTRICT (Cheshire) M.A.S., the secretary being Mr. P. Swan, of Hope Cottage, Millington, nr. Altrincham, Cheshire, who asks that this announcement be included in this month's news. Here's luck.

A couple of fine photos are sent in by R. B. Borra, of the SKYBIRD CLUB, 287a, stationer, at Leatherhead. One model is a Blackburn Skua, to a scale of 1.72 to the inch, and won the Premier Craftsman Award in the Skybird Rally this year, as also the Challenge Cup for number 287a. The other photo is of a Hawker Hurricane, built by the secretary of the section, Mr. F. R. Leatherdale. Both show very fine workmanship.

Two other photos come from Mr. F. Farnworth, and show his new 6 ft. gas job, powered by "Gwyn Aero," and a 50 in. Rearwin Speedster, that has averaged 65 seconds for three flights. This chap is a member of the CHINGFORD M.F.C., and I congratulate him on the fine time he has recorded with the scale model—my own experiences showing that this is a fine average.

The Aircraft Section of the SALISBURY AND D.M.E.S. wound up the outdoor flying season with a competition for non-prizewinners only. Each entrant was given three attempts to make a flight of, or nearest to, 45 seconds, the winner being A. Burden, who clocked 49 sec.

The six-round contest for the Neale Cup was won by C. Sellwood, with an average for 18 flights of 72.4 sec., a creditable performance. R. Snook came second with an average of 60.1 sec., and K. Scannell third, his average being 59.2 sec.

In spite of the war the society is still carrying on, although activities have had to be curtailed somewhat owing to several members being engaged on A.R.P. work or having joined the Services. It has also been found difficult to arrange for the usual monthly demonstrations and lectures under present conditions, but it is intended to fix up one or two indoor flying contests during the winter.

The club-room at the Engineers' Arms Hotel is still being kept open on Monday and Thursday evenings, and if there are any evacuees or others who are interested in model aircraft or model engineering, they will be made very welcome

(I commend this latter suggestion very heartily to other clubs who may be in a position to extend their facilities to those youngsters who have had to leave their own associates, and trust that some firm friendships and contacts are established.

I am told that some weird and wonderful machines were expected for the first indoor meeting of the NORTHAMPTON M A C , and look forward to further details of this meeting Mr. K. Chapman won a gun ea prize offered for consistency in petrol flights, turning in 54 flights during the season

Another club determined to keep going are the STOCKTON-ON TEES M A C boys. This club seems to have gone all "petrol," judging by the number of engines that are turning up. It's surprising how the time slips by when tinkering with a stubborn engine' Interest is also being shown for speed models, some nice ships coming up for inspection.

Members of the EGHAM DISTRICT AND WOKING M F.C. clubs visited Brooklands aerodrome, at the invitation of the managing director, and from all accounts had a whale of a time Two competitions held were won by Messrs. E Chapman (Woking) and W R. Laws (Egham), these chaps being taken for a flight by Capt Duncan Davies as a reward. A photo shows some of the members who attended

Results of the WOODFORD M A C "ladder" competition, in which each member has three flights per week during the competition season, were

1.	B Smith	5,786 points
2	D. Gee . ..	4,001
3	K Martin .. .	3 651 ,

Unfortunately, this club are without their clubroom at the moment but are continuing in spite of difficulties. Owing to the secretary being called up for the R A F , his duties are being carried on by Mr. D Gee, of 183 West Grove, Woodford Green, to whom all correspondence should be forwarded

Another change of secretaryship is in the WYTHENSHAWE AND D M A C , the new member being Mr A Timms, of 21 Shannon Road Crossacres, Wythenshawe Manchester

Len Stott secretary of the HALIFAX M A C , writes "There has been great activity lately by members of the Halifax Club, and attendances at the flying ground on Saturdays and Sundays have been better than before the war I hope that other clubs are able to carry on the same for during times like these our hobby is a safeguard and nerve steadier, of which we should take every advantage. The annual general meeting of the club will be held on October 31st, when it will be proposed that the club carry on almost as usual, with a reduction of subscription fees from 6s. to 3s 6d. for the duration of the war We are still signing on new members, though we are the poorer for the loss of our competition secretary, Ray Johnson, and our hon treasurer, Douglas Broadbent, who are off to training colleges

"Saturday, October 21st, was an ideal day for flying and Len Stott, who was flying a replica of his 'Flying Minutes' that he flew in America, had a wonderful flight of 15 minutes, officially timed. The model rose to a height of almost 1,000 feet, and landed within a mile of the ground This flight came within 2½ minutes of being the best flight of the year, for which there is a cup It will be remembered that Dennis G. Lees made a flight of 17½ minutes at the Northern Rally earlier in the season

We consider it very bad luck to be robbed of the honour of being acclaimed the winners of the Pragge Cup, as we were in the lead at the time the programme was curtailed

"Altogether, we have had a most successful season, having won the Pilcher Cup for gliders, the Short Bros Cup for seaplanes, two members in the British team to visit America, championship of Northern Rally, both individual and as a team We hereby make a claim to be considered as the "Cocks o' the North," a title previously bestowed upon the Lancs. M A S

"Here's to a speedy end to Hitlerism, so that we can get cracking in again, and bring back the old pot from the U S A Now is the time for Wakefield enthusiasts to be getting ready with new ideas, so that when the time does come we can knock Korda and Co. for a six"

Well, I must agree that it was a great pity to have the Cup snatched out of their hands at the last moment, but I think we can all agree that this club had virtually got their hands on the boodle and are entitled to be classed as the champion club of 1939 (From what I know of the Lancs. lads they are willing to relinquish their title as long as it was to another Northern Club!) *Re* the Wakefield, you have read my suggestions, and I would appreciate the views of Stott and Co. in particular, as they know what has to be done

The competition for the Golding Cup of the BEDFORD M.A.C. was well attended, and despite rough weather—and no thermals—quite good flights were made, and two new club records set up. The average of two H.L. and two R.O.G. flights were taken, and resulted as follows :—

1.	Mr Barrett	Av. 92·5 sec.	
2.	Mr. MacBean	,, 87.7	,,
3.	Mr. Grant	,, 69·5	,,

Mr. Barrett set a new record for models under 120 sq. in. of 153 sec. H.L., while Mr. MacBean made a new record for the larger class of 188 sec. R.O.G.

Mr. Cox has lost his Wakefield model after a flight of 7 min., and Mr. Grant likewise lost his Northern Star after 15 minutes. (How is it I can never get such times? I shall have to start filling the wings with some of the gas I spout at you monthly !)

J. G. Eiffiander, of the MACCLESFIELD M.A.S., has raised the club scale record to 37 sec. H.L. with a 30 in. span Puss Moth. Mr. Turner has completed—and "finished"—a 42 in. Miles Hawk with a 4—1 gear-box. This made an impressive flight of 20 seconds before parting company with the fin at a height of 60 feet, the resulting aerobatic display leaving nothing to be desired from a spectacular point of view. But the ground was hard, and balsa is not! Many members have perforce had to leave for other duties, but the remaining fellows are doing their best. Several evacuees have been seen in the district with models, and they are welcome to the club field, if they will get in touch with the secretary.

The CHIGWELL AND D.M.A.C. are starting their second year, and forward their club records list to date as under :—

Wakefield Class, B. A. Mason ...	150 sec.	H.L.
Medium weight, B. A. Mason ...	90 ,,	H.L.
Light weight, W. O. B. Smee ...	1,800 ,,	H.L.
S.M.A.E. formula, R. R. B. Smee ...	120 ,,	H.L.
Own design (light), W. O. B. Smee ...	135 ,,	H.L.
Kit model (medium), M. Brown ...	98·3 ,,	
Kit model)light), B. A. Mason ...	330 ,,	

Official club record : W. O. B. Smee, 1,800 sec.

Full details of the Cotebrook meeting mentioned earlier are forthcoming from the COTEBROOK AND D.M.E.S., are :—

1.	W. Eden (Warrington) ...	83 sec., av. of three.
2.	J. West (Warrington) ...	67·4 ,, ,, ,,
3.	F. Wilde (Chester)	55 ,, ,, ,,

Best time of the day was made by A. Rooney, of the Cotebrook Club, clocking 107 sec. Owing to the confiscation of the club-room by the Army, and to many members being called up, operations have been temporarily suspended.

Two other photos sent in this month show R. J. Crutcher, of Eltham, with the "Isle of Thanet" Cup, and a "Korda," built by J. Farrell, of Dublin.

The ALTRINCHAM AIR CADETS have formed a model aircraft section, and fly on the playing fields of the Grammar School. Most of the models are on the small side, the ground not permitting large staff.

Owing to the usual ground being commandeered for troop exercises, the WOKING AND D.M.A.C. are flying at Smart's Heath on the third Sunday every month. "Naturally," the first meeting was washed out owing to rain!

A correction comes from the WIRRAL M.A.S., who, in spite of previous statements, are carrying on, and hope to stage several competitions next summer. (When is that coming off? Keep it dark, or it will not put in an appearance!) Two petrol models have been built and flown, and I am promised details of a unique "lifting fuselage" model, designed by J. Bishop.

Miss Pauline Gower kindly presented prizes to Messrs. G. L. Wicks and Hodge, at the conclusion of a recent competition held by the TUNBRIDGE WELLS M.A.C. Membership in this club now stands at 40, and the financial position has improved. The club record is now 96 sec., held by L. Veness, while a model built by Mr. Richardson recently flew for three miles in a high wind.

From our old pal Needham, of the BRISTOL AND WEST M.A.C., comes the following letter :—

"I am glad to be able to report that this club will carry on as usual. Indoor meetings will be so arranged as to coincide with a full moon, so we can get home easier. (This sounds bad, but we used to be able to get home without this assistance in pre-war days).

"In the circumstances it was deemed advisable to elect a new secretary, and he is A. H. Lee, 51 Colston Street, Bristol 1. As we are going to work out a handicap for each of the competition-minded members (this will stop somebody's gallop!), I hope he enjoys himself.

"A very well attended general meeting was held on October 8th, and the prizes won during the season were presented. On October 22nd we had a really enjoyable day out, at the invitation of (and, as it worked out in the competition results—at the expense of) the Bath M.A.C. Despite the lateness of the season the day was excellent, as is evidenced by the following winning averages :—

Low-wing event	87 sec.	
Biplane event	126	,,
Open duration event	152	,,

The seaplane event of the ILKLEY M.A.C. has had to be postponed owing to lack of entries, but it is hoped to finish the 1939 programme, in spite of Adolph. Leaders in the club championship are K. E. Anning with 11 points, J. Townsend 9 points, and M. Tordoff with 2 points. Townsend has raised the H.L. record to 4 min. 20 sec., and the R.O.G. figure to 4 min. 25 sec. Tentative pole-flying has been done with revamped outdoor models, the best time to date being 47 sec. One member is at work on his 1940 Wakefield model—monocoque, retractable undercart, folding prop., etc. Is this optimism, or is it optimism?

Though conditions were far from ideal, the WESTLAND M.A.C. held its second competition for the W. and L. S., Challenge Cup, resulting in a win for K. Howland with 180·6 sec., followed by L. Stoner, 105 sec., and H. Harrison 94·4 sec.

The HACKNEY M.A.C. are now getting into touch with "lost" members! Meanwhile, flying continues, and one new member has been enrolled. Secretary's change of address is noted, and is now 188 Clapton Common, London, E.5.

BIRMINGHAM M.A.C. had the worst of bad luck when, at the last minute, their rally had to be cancelled owing to the R.A.F. taking over the aerodrome as soon as the Prime Minister's speech had concluded. Most of the committee being over military age, it is hoped to carry on without "fading," and meetings are being held at the Friends' Institute, Moseley Road, every second Wednesday in the month, at 8 p.m., and, until such time as the ground is ploughed up under the new farming scheme, flying will take place at the Midland Club Gliding Aerodrome, Handsworth Wood. No. 16a bus goes to this ground.

A novel competition, staged on knock-out principles, was held by the CHESTER M.F.C., the winners being Messrs. Meredith, Hamilton and Dodd. It is claimed that this type of contest was very interesting to spectators, and a change from the usual timed event.

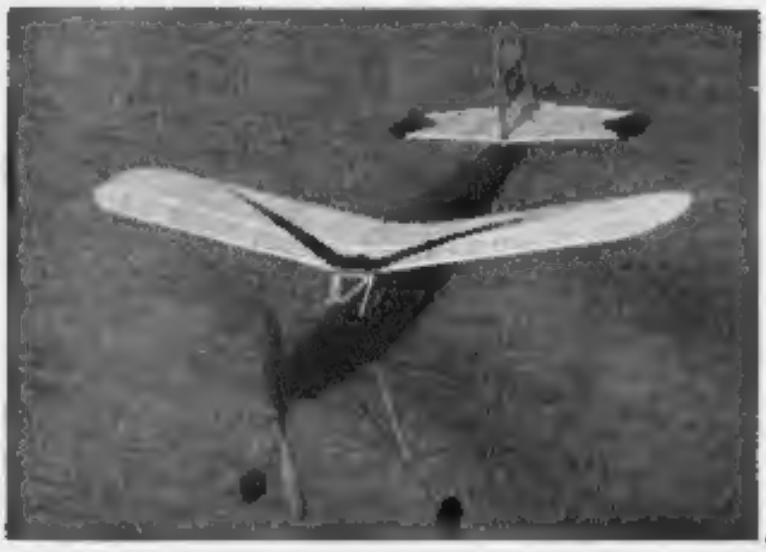
Well, folks, that's that for the time being, and in spite of conditions, nmny, war, by the cause of, as the Army would say it, we seem to be getting rid of that first defeatist attitude. Don't forget what I said about letting little Adolph and his pals stew in their own juice, and may his days get Fuehrer and Fuehrer! Aintiawful!

(By the way, I suppose you heard of the Tommy who went into the canteen and asked the W.A.A.C. for "two slices of burnt toast, a stale egg, and a cup of cold tea." When asked if that was all, he asked the girl to "Sit down and nag at me—I feel homesick!" Not new, but it's clean, isn't it?)

One thing I cannot let pass this month, and that is the way some of you have slipped up in forgetting the necessary date by which your reports should reach this office. In spite of war, Hitler, and all the other things that have made these last months rather out of the ordinary, please do not forget that reports must reach me by the *25th of the month*. Nearly 50 per cent of you have lapsed this month, and while appreciating that this has in some cases been occasioned by reason of special meetings, etc., I think we are now at a stage where we can get back to normal. So don't forget the 25th, and no later, please.

With which I will pick up my tent and hie me to the wilds for another month, and trust we shall have more and more news for you each month. Here's mud in your eyes!

CLUBMAN.



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